December 2015

## Fourth Bimonthly Report

Groundwater Monitoring Wells at the Luis Muñoz Marín International Airport (LMMIA)

CARIBBEAN AIRPORT FACILITIES, INC.

Ref.: 354-2015.12.17 4th Bimonthly Report CAF Monitoring Wells Sampling Report FOIA

becember 30, 20



### **EXECUTIVE SUMMARY**

As part of the *Subsurface Investigation Plan ("SIP")*, developed on March 2012 to delineate the vertical and horizontal extent of subsurface contamination with jet fuel products in the soils and groundwater in the vicinity of the Caribbean Airport Facilities, Inc. (CAF) at the Luis Muñoz Marin International Airport (LMMIA), progressive reports are to be presented on a bimonthly basis to the U.S. EPA.

This report summarizes activities performed after the installation of monitoring wells at the Luis Muñoz Marin International Airport (LMMIA) mainly in areas operated by Caribbean Airport Facilities, Inc. (CAF). This fourth bimonthly report herein summarizes events documented until the week ending Friday, December 25<sup>th</sup>, 2015.

#### SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

| A Subsurface Investigation effort was performed to identify any evident, current and/or         |
|---|
| potential, environmental contamination at the Luis Muñoz Marin International Airport (LMMIA)    |
| property lot, operated by Caribbean Airport Facilities, Inc. (CAF). This study was performed as |
| per the regrest of Ms. Jean Tirri representing CAF.   |

Environmental Professional's Signature

Name: Fernando L. Rodríguez, P. E., SC

#### **TABLE OF CONTENTS**

- 1.0 Introduction
- 2.0 Daily Activities Reports
- 3.0 Groundwater Levels Database
- 4.0 Project Progress and/or Proposed Schedule
- 5.0 References



### Fourth Bimonthly Report

Groundwater Monitoring Wells at the Luis Muñoz Marin International Airport (LMMIA)

#### 1.0 Introduction

The period encompassed within the past two (2) months includes:

The first week of November (week ending Friday, November 6, 2015) through the last week of December (week ending Friday, December 25, 2015).

Within this period, the **Third Groundwater Bimonthly Sampling** event was scheduled and performed. Daily Activities for both sampling days are herein included (November 11-12, 2015). No major weather nor airport operational delays occurred during those two (2) days of sampling activities. All sampling and QA/QC procedures were followed by all project teams involved.

Regardless of the proper packing procedures followed, the laboratory was unable to analyze groundwater collected from the deep well at location 6 (MW6S) for TPH-DRO; the bottles arrived shattered.

Tabulated Results of this sampling are included as an attachment to this section. In addition, a comparison table is included showing results from the initial sampling (May 2015) and the bimonthly sampling performed on September 2015 for easy comparison with this (November 2015) and future results.

Significant reduction in TPH-GRO or volatile range levels are seen throughout all the shallow wells and most deep wells. The only sample that remained over the detected level during this particular event was the deep well in location 1 (MW1D). This parameter represents lighter petroleum hydrocarbons than TPH-DRO, also referred to as the semivolatile range.

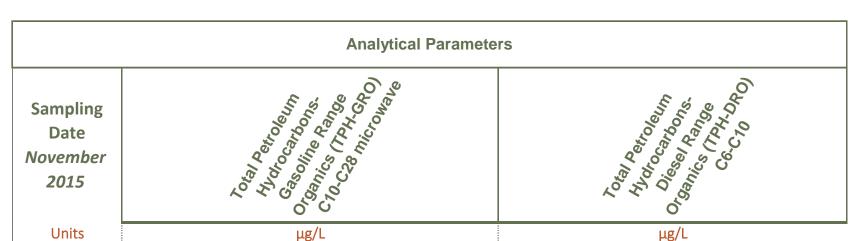
The TPH-DRO results show increases and decreases confirming transmissivity or movement of product primarily along the shallow wells.

The corresponding Third Party Data Validation Report for these results is included at the end of this report (after the References). In addition, Monthly Groundwater Levels Measurements recorded during this period are included with Daily Activities Reports included in Section 2.0 as well as an updated copy of the Groundwater Levels Measurement Database in Section 3.0.

## Caribbean Airport Facilities, Inc. - Subsurface Investigation Project

Tabulated Data received from: Advanced Environmental Laboratories, Inc.

# Bimonthly Groundwater Sampling Results



|                 |                     | Offics       |                | μβ/ Ε  |                                 |                                | ₩6/ L      |                                 |                                |  |
|-----------------|---------------------|--------------|----------------|--------|---------------------------------|--------------------------------|------------|---------------------------------|--------------------------------|--|
|                 | Lab Group<br>Number | Lab Sample # | Date Collected | Result | Method Detection<br>Limit (MDL) | Limit of<br>Quantitation (LOQ) | Dry Result | Method Detection<br>Limit (MDL) | Limit of<br>Quantitation (LOQ) |  |
| Equipment Blank | 1608570             | 8129675      | 11/10/2015     | ND     | 20                              | 50                             | 330        | 30                              | 94                             |  |
| MW11D-W01       | 1608570             | 8129676      | 11/10/2015     | ND     | 20                              | 50                             | 110        | 30                              | 95                             |  |
| MW11D-W01 MS    | 1608570             | 8129677      | 11/10/2015     | 1,200  | 20                              | 50                             | 1,200      | 30                              | 95                             |  |
| MW11D-W01MSD    | 1608570             | 8129678      | 11/10/2015     | 1,300  | 20                              | 50                             | 1,300      | 30                              | 94                             |  |
| MW11S-W01       | 1608570             | 8129679      | 11/10/2015     | ND     | 20                              | 50                             | 610        | 30                              | 95                             |  |
| MW10S-W01       | 1608570             | 8129680      | 11/10/2015     | ND     | 20                              | 50                             | ND         | 30                              | 95                             |  |
| MW10S-W01 D     | 1608570             | 8129681      | 11/10/2015     | ND     | 20                              | 50                             | ND         | 31                              | 95                             |  |
| MW10D-W01       | 1608570             | 8129682      | 11/10/2015     | ND     | 20                              | 50                             | 77         | 30                              | 95                             |  |
| MW6D-W01        | 1608570             | 8129683      | 11/10/2015     | ND     | 20                              | 50                             | 110        | 30                              | 95                             |  |
| MW6S-W01        | 1608570             | 8129684      | 11/10/2015     | ND     | 20                              | 50                             | -          | -                               | -                              |  |
| Trip Blank      | 1608570             | 8129685      | 11/10/2015     | ND     | 20                              | 50                             | -          | -                               | -                              |  |
| Field Blank     | 1608570             | 8129686      | 11/10/2015     | ND     | 20                              | 50                             | ND         | 30                              | 94                             |  |
| MW3D-W01        | 1608570             | 8129687      | 11/10/2015     | ND     | 20                              | 50                             | 92         | 30                              | 95                             |  |
| MW3S-W01        | 1608570             | 8129688      | 11/10/2015     | ND     | 20                              | 50                             | 68         | 30                              | 95                             |  |
| MW9D-W01        | 1608570             | 8129689      | 11/10/2015     | ND     | 20                              | 50                             | 470        | 30                              | 95                             |  |
| MW9S-W01        | 1608570             | 8129690      | 11/10/2015     | ND     | 20                              | 50                             | 620        | 30                              | 94                             |  |
| MW7D-W01        | 1608570             | 8129691      | 11/10/2015     | ND     | 20                              | 50                             | 720        | 30                              | 95                             |  |
| MW7S-W01        | 1608570             | 8129692      | 11/10/2015     | ND     | 20                              | 50                             | 190        | 30                              | 94                             |  |
| MW7S-W01D       | 1608570             | 8129693      | 11/10/2015     | ND     | 20                              | 50                             | 160        | 30                              | 94                             |  |
| MW5D-W01        | 1608570             | 8129694      | 11/10/2015     | ND     | 20                              | 50                             | 150        | 30                              | 95                             |  |
| MW5S-W01        | 1608570             | 8129695      | 11/10/2015     | ND     | 20                              | 50                             | 150        | 30                              | 95                             |  |

## Caribbean Airport Facilities, Inc. - Subsurface Investigation Project

Tabulated Data received from: Advanced Environmental Laboratories, Inc.

|                             |   |              |                                   |  | Ar                              | ers                            |  |                                 |                                |
|-----------------------------|---|--------------|-----------------------------------|--|---------------------------------|--------------------------------|--|---------------------------------|--------------------------------|
| Bimonthly Ground<br>Results | imonthly Groundwater Sampling<br>esults |              | Sampling Date November 2015 Units | ber distribution of the state o |                                 |                                | Total Performance of the Property of the Prope |                                 |                                |
|                             | Lab Group<br>Number                     | Lab Sample # | Date Collected                    | Result   | Method Detection<br>Limit (MDL) | Limit of<br>Quantitation (LOQ) | Result   | Method Detection<br>Limit (MDL) | Limit of<br>Quantitation (LOQ) |
| Equipment Blank             | 1608983                                 | 8132042      | 11/11/2015                        | ND   | 20                              | 50                             | 120  | 31                              | 95                             |
| MW4D-W01                    | 1608983                                 | 8132043      | 11/11/2015                        | ND   | 20                              | 50                             | 84   | 30                              | 95                             |
| MW4D-W01 MS                 | 1608983                                 | 8132044      | 11/11/2015                        | 1,300  | 20                              | 50                             | 1,300  | 30                              | 94                             |
| MW4D-W01 MSD                | 1608983                                 | 8132045      | 11/11/2015                        | 1,300  | 20                              | 50                             | 1,000  | 30                              | 95                             |
| MW4S-W01                    | 1608983                                 | 8132046      | 11/11/2015                        | ND   | 100                             | 250                            | 3,500  | 30                              | 94                             |
| Trip Blank                  | 1608983                                 | 8132047      | 11/11/2015                        | ND   | 20                              | 50                             | -  | -                               | -                              |
| Field Blank                 | 1608983                                 | 8132048      | 11/11/2015                        | ND   | 20                              | 50                             | ND   | 30                              | 95                             |
| MW2D-W01                    | 1608983                                 | 8132049      | 11/11/2015                        | ND   | 100                             | 250                            | 92   | 30                              | 95                             |
| MW2S-W01                    | 1608983                                 | 8132050      | 11/11/2015                        | ND   | 100                             | 250                            | 630  | 30                              | 94                             |
| MW1D-W01                    | 1608983                                 | 8132051      | 11/11/2015                        | 47   | 20                              | 50                             | 67   | 30                              | 94                             |
| MW1S-W01                    | 1608983                                 | 8132052      | 11/11/2015                        | ND   | 100                             | 250                            | 160  | 30                              | 95                             |
| MW8D-W01                    | 1608983                                 | 8132053      | 11/11/2015                        | ND   | 100                             | 250                            | 240  | 30                              | 95                             |
| MW8S-W01                    | 1608983                                 | 8132054      | 11/11/2015                        | ND   | 20                              | 50                             | 57   | 30                              | 95                             |

### Fernando L. Rodríguez, P.E. & Associates

# Caribbean Airport Facilities, Inc. Subsurface Investigation Project

Data Comparison Tables. Tabulated Data received from: Advanced Environmental Laboratories, Inc.

|                      | TPH-GRO |        |        |        |        |        |        |  |  |
|----------------------|---------|--------|--------|--------|--------|--------|--------|--|--|
|                      |         | May-15 | Sep-15 | Nov-15 | Jan-16 | Mar-16 | May-16 |  |  |
| <b>Shallow Wells</b> | TREND   |        |        |        |        |        |        |  |  |
| MW1-S                | \       | 2100   | ND     | ND     |        |        |        |  |  |
| MW2-S                |         | 770    | ND     | ND     |        |        |        |  |  |
| MW3-S                |         | 610    | ND     | ND     |        |        |        |  |  |
| MW4-S                | \       | 5300   | ND     | ND     |        |        |        |  |  |
| MW5-S                | \       | 76     | ND     | ND     |        |        |        |  |  |
| MW6-S                |         | 990    | ND     | ND     |        |        |        |  |  |
| MW7-S                |         | 210    | ND     | ND     |        |        |        |  |  |
| MW8-S                | \       | 270    | ND     | ND     |        |        |        |  |  |
| MW9-S                |         | 940    | ND     | ND     |        |        |        |  |  |
| MW10-S               | \       | 210    | ND     | ND     |        |        |        |  |  |
| MW11-S               |         | ND     | ND     | ND     |        |        |        |  |  |
| Max Result TPH-GRO   |         | 5300   | ND     | ND     |        |        |        |  |  |

|                    | TPH-GRO |        |        |        |        |        |        |  |  |
|--------------------|---------|--------|--------|--------|--------|--------|--------|--|--|
|                    |         | May-15 | Sep-15 | Nov-15 | Jan-16 | Mar-16 | May-16 |  |  |
| Deep Wells         | TREND   |        |        |        |        |        |        |  |  |
| MW1-D              | 1       | 240    | 26     | 47     |        |        |        |  |  |
| MW2-D              | \       | 360    | 25     | ND     |        |        |        |  |  |
| MW3-D              |         | 410    | ND     | ND     |        |        |        |  |  |
| MW4-D              | \       | 860    | ND     | ND     |        |        |        |  |  |
| MW5-D              |         | 140    | 24     | ND     |        |        |        |  |  |
| MW6-D              | \       | 390    | 23     | ND     |        |        |        |  |  |
| MW7-D              |         | ND     | ND     | ND     |        |        |        |  |  |
| MW8-D              | \       | 540    | ND     | ND     |        |        |        |  |  |
| MW9-D              |         | 760    | ND     | ND     |        |        |        |  |  |
| MW10-D             | \       | 89     | ND     | ND     |        |        |        |  |  |
| MW11-D             | \_      | 270    | ND     | ND     |        |        |        |  |  |
| Max Result TPH-GRO |         | 860    | 26     | 47     |        |        |        |  |  |

### Fernando L. Rodríguez, P.E. & Associates

# Caribbean Airport Facilities, Inc. Subsurface Investigation Project

Data Comparison Tables. Tabulated Data received from: Advanced Environmental Laboratories, Inc.

|                      | TPH-DRO |        |        |        |        |        |        |  |  |
|----------------------|---------|--------|--------|--------|--------|--------|--------|--|--|
|                      |         | May-15 | Sep-15 | Nov-15 | Jan-16 | Mar-16 | May-16 |  |  |
| <b>Shallow Wells</b> | TREND   |        |        |        |        |        |        |  |  |
| MW1-S                |         | 50     | 140    | 160    |        |        |        |  |  |
| MW2-S                |         | 43     | 410    | 630    |        |        |        |  |  |
| MW3-S                |         | ND     | 48     | 68     |        |        |        |  |  |
| MW4-S                |         | 35     | 3600   | 3500   |        |        |        |  |  |
| MW5-S                | /       | 28     | 67     | 150    |        |        |        |  |  |
| MW6-S                |         | 140    | 270    | -      |        |        |        |  |  |
| MW7-S                |         | 58     | 410    | 190    |        |        |        |  |  |
| MW8-S                |         | ND     | ND     | 57     |        |        |        |  |  |
| MW9-S                |         | 24     | 400    | 620    |        |        |        |  |  |
| MW10-S               |         | ND     | ND     | ND     |        |        |        |  |  |
| MW11-S               |         | ND     | 620    | 610    |        |        |        |  |  |
| Max Result TPH-DRO   |         | 140    | 3600   | 3500   |        |        |        |  |  |

|                    | TPH-DRO |        |        |        |        |        |        |  |  |
|--------------------|---------|--------|--------|--------|--------|--------|--------|--|--|
|                    |         | May-15 | Sep-15 | Nov-15 | Jan-16 | Mar-16 | May-16 |  |  |
| Deep Wells         | TREND   |        |        |        |        |        |        |  |  |
| MW1-D              |         | 20     | 41     | 67     |        |        |        |  |  |
| MW2-D              |         | 33     | 75     | 92     |        |        |        |  |  |
| MW3-D              |         | ND     | 62     | 92     |        |        |        |  |  |
| MW4-D              |         | 30     | 36     | 84     |        |        |        |  |  |
| MW5-D              |         | ND     | -      | 150    |        |        |        |  |  |
| MW6-D              |         | 75     | 95     | 110    |        |        |        |  |  |
| MW7-D              |         | ND     | 570    | 720    |        |        |        |  |  |
| MW8-D              |         | 40     | 100    | 240    |        |        |        |  |  |
| MW9-D              |         | 160    | 200    | 470    |        |        |        |  |  |
| MW10-D             |         | ND     | 47     | 77     |        |        |        |  |  |
| MW11-D             |         | ND     | 31     | 110    |        |        |        |  |  |
| Max Result TPH-DRO |         | 160    | 570    | 720    |        |        |        |  |  |



### Fourth Bimonthly Report

Groundwater Monitoring Wells at the Luis Muñoz Marin International Airport (LMMIA)

#### 2.0 Daily Activities Reports

The following reports include relevant daily notes documented by the "CHES Services Corp. Team". Historical weather data has been included for up to two (2) days prior to the groundwater level readings event, as provided by Weather Underground [1].

#### Weather Station ID: ISANJUAN16

In addition, observed water levels reported by NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) [2].

#### NOAA/NOS/CO-OPS Station - San Juan, PR - Station ID: 9755371

| Established:                | Mar 04, 1962       |
|-----------------------------|--------------------|
| Time Meridian:              | 60° W              |
| Present Installation:       | Mar 25, 1989       |
| Date Removed:               | N/A                |
| Water Level Max (ref MHHW): | 2.77 Sep 18, 1989  |
| Water Level Min (ref MLLW): | -1.09 Dec 20, 1968 |
| Mean Range:                 | 1.1 ft.            |
| Diurnal Range:              | 1.58 ft.           |



## Daily Activities Report Prepared by: CHES Services Corp. d/b/a: Fernando L. Rodríguez, PE & Associates

|             |              | Ch   | emical/Environmental Ei<br><u>W</u> | ngineering & Indust<br>vww.flraches.com | rial Hygiene Consuli | tants         |          |      |                      |
|-------------|--------------|--|-------------------------------------|---|----------------------|---------------|----------|------|----------------------|
| Project:    | CAF MW Wee   | ekly Groundwater levels reading                        |                                     |   |                      |               |          |      |                      |
| Address:    | LMMIA        | Date   | :                                   | No                                      | vember 10, 201       | .5            |          |      |                      |
| Phone:      | 787-751-7810 | CHES   | Representative:                     | HR                                      | M/NDM/DP             |               |          |      |                      |
| Time        | Location     |  |                                     | Activi                                  | ity / Observat       | ions          |          |      |                      |
| 8:20        | MW11         | Arrived for sampling at lo                             | cation 11                           |   |                      |               |          |      |                      |
| 9:17        | MW10         | Arrived for sampling at lo                             | cation 10                           |   |                      |               |          |      |                      |
|             | MW6          |  |                                     |   |                      |               |          |      |                      |
|             | MW6          |  |                                     |   |                      |               |          |      |                      |
|             | MW3          |  |                                     |   |                      |               |          |      |                      |
|             | MW3          | Arrived at location 3 for sampling  Paused due to rain |                                     |   |                      |               |          |      |                      |
|             |              |  |                                     |   |                      |               |          |      |                      |
|             | MW3          | Work began at location 3                               |                                     |   |                      |               |          |      |                      |
| 11:30       | CAF1         | Lunch  |                                     |   |                      |               |          |      |                      |
| 13:00       | MW7          | Arrived for sampling at lo                             | cation 7                            |   |                      |               |          |      |                      |
| 13:43       | MW5          | Arrived at location 5 for s                            | ampling                             |   |                      |               |          |      |                      |
| 14:16       | MW9          | Arrived for sampling at lo                             | cation 9                            |   |                      |               |          |      |                      |
| 15:00       | MW9          | Done at location 9; J&S p                              | ersonnel checke                     | ed out                                  |                      |               |          |      |                      |
| 15:10       | CAF1         | Prepping coolers                                       |                                     |   |                      |               |          |      |                      |
| 17:45       | CAF1         | CHES Personnel Checked                                 | out                                 |   |                      |               |          |      |                      |
|             |              |  | Moving F                            | orward (Nex                             | t Steps)             |               |          |      |                      |
| Action Item |              |  |                                     |   | Deadlin              | ie            | %Comple  | tion | Responsible Party    |
| N/A         |              |  |                                     |   | N/A                  |               | N/A      |      | N/A                  |
|             |              |  |                                     | eather Histor                           | -                    |               |          |      |                      |
|             |              |  | orior to GW Level N                 | lonitoring ever                         | nt                   |               |          |      | Special Comments N/A |
|             |              | Sunday, November                                       | 8, 2015                             |   |                      | New           | + D      |      | N/A                  |
|             |              | « Previous Day  Daily Weekly Mont                      | hly Custom                          |   |                      | Nex           | kt Day » |      |                      |
|             |              | Daily Weekly Mont                                      | illy Custom                         | Actual                                  | Average              | Record        |          |      |                      |
|             |              | Temperature  |                                     |   |                      |               |          |      |                      |
|             |              | Mean Temperature                                       |                                     | <b>28</b> °C                            | <b>27</b> °C         |               |          |      |                      |
|             |              | Max Temperature  |                                     | 31 °C                                   | 31 °C                | 32 °C (1962)  |          |      |                      |
|             |              | Min Temperature  |                                     | <b>24</b> °C                            | <b>24</b> °C         | 20 °C (1959)  |          |      |                      |
|             |              | Degree Days  |                                     |   |                      |               |          |      |                      |
|             |              | Heating Degree Days                                    |                                     | 0                                       | 0                    |               |          |      |                      |
|             |              | Month to date heating deg                              |                                     | 0                                       | 0                    |               |          |      |                      |
|             |              | Since 1 July heating degree<br>Cooling Degree Days     | days                                | 0                                       | 0                    |               |          |      |                      |
|             |              | Month to date cooling degr                             | ee days                             | 132                                     | 131                  |               |          |      |                      |
|             |              | Year to date cooling degree                            |                                     | 5406                                    | 5090                 |               |          |      |                      |
|             |              | Growing Degree Days                                    |                                     | 32 (Base 50)                            |                      |               |          |      |                      |
|             |              | Moisture   |                                     |   |                      |               |          |      |                      |
|             |              | Dew Point  |                                     | <b>24</b> °C                            |                      |               |          |      |                      |
|             |              | Average Humidity                                       |                                     | 77                                      |                      |               |          |      |                      |
|             |              | Maximum Humidity                                       |                                     | 91                                      |                      |               |          |      |                      |
|             |              | Minimum Humidity                                       |                                     | 63                                      |                      |               |          |      |                      |
|             |              | Precipitation  |                                     |   |                      |               |          |      |                      |
|             |              | Precipitation  |                                     | 0.76 mm                                 | 5.59 mm              | 9.73 mm (195) | 2]       |      |                      |
|             |              | Month to date precipitation                            |                                     | 3.87                                    | 1.79                 |               |          |      | 5                    |

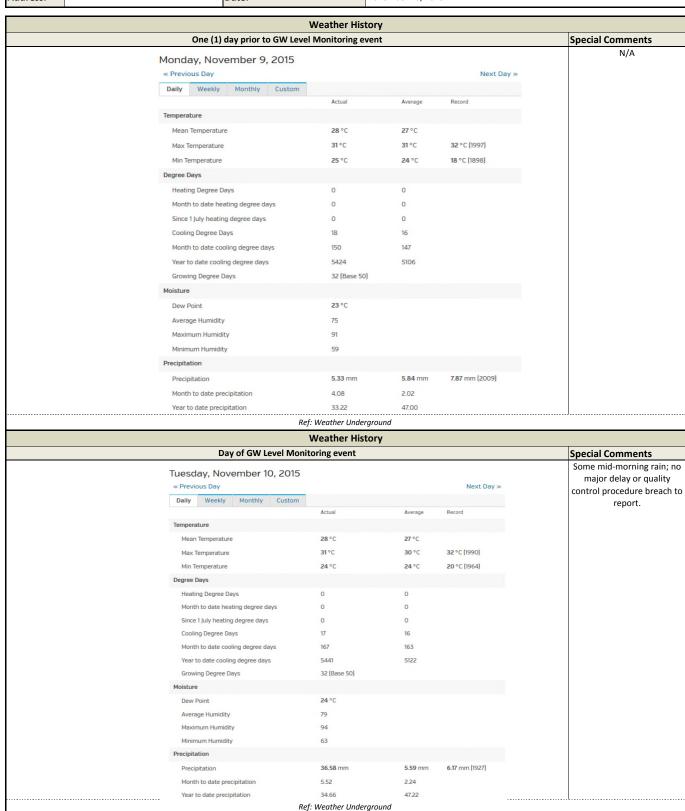
33.01

Ref: Weather Underground

Year to date precipitation

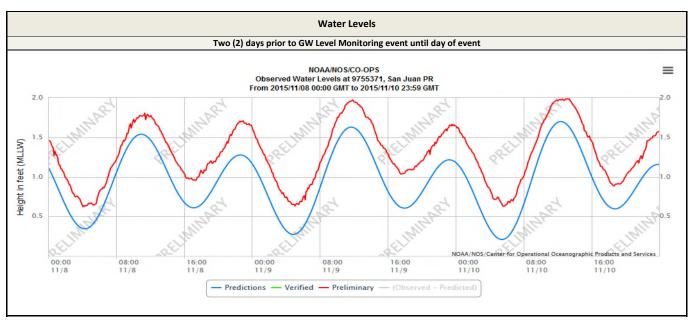


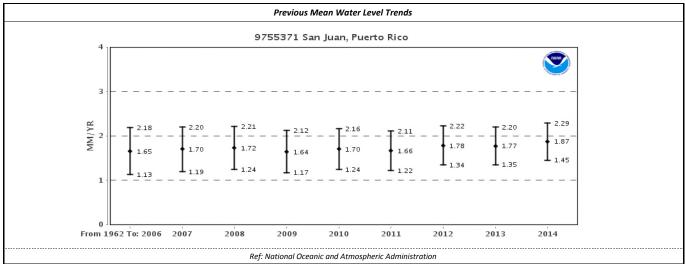
Project: CAF MW Weekly Groundwater levels reading Address: LMMIA Date: November 10, 2015





Project: CAF MW Weekly Groundwater levels reading Address: LMMIA Date: November 10, 2015





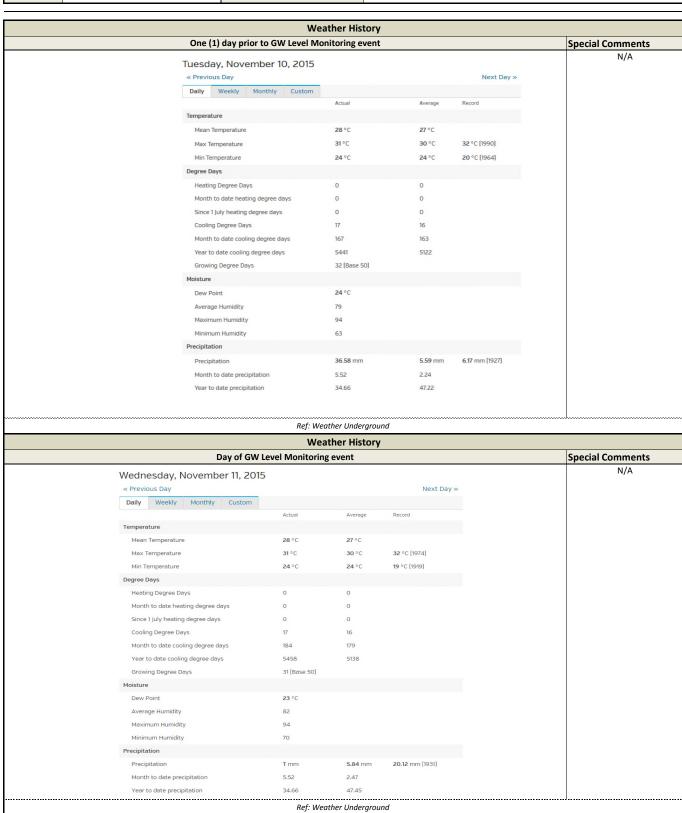


| Project: | CAF MW Weekly Groundwater levels re | ading | CAF MW Weekly Groundwater levels reading |  |  |  |  |  |
|----------|-------------------------------------|-------|--|--|--|--|--|--|
| Address: | LMMIA                               | Date: | November 11, 2015                        |  |  |  |  |  |

| Address:    | LMMIA  |  |   |   |                                    |             |                   |  |  |  |
|-------------|--|--|---|---|------------------------------------|-------------|-------------------|--|--|--|
|             |  |  |   |   |                                    |             |                   |  |  |  |
| Phone:      | 787-751-781  | 0  | CHES Representat  | ive:  | HRM/NDM/DP                         |             |                   |  |  |  |
| ime         | Location   |  |   |   | Activity / Observations            |             |                   |  |  |  |
| 6:15        | CAF1   | CHES team working  | on setting up fo  | r the day   |                                    |             |                   |  |  |  |
| 7:00        | MW4  | Arrived for sampling   | g at location 4   |   |                                    |             |                   |  |  |  |
| 7:46        | MW2  | Arrived for samplin  | g at location 2   |   |                                    |             |                   |  |  |  |
| 8:29        | MW1  | Arrived for sampling   | ed for sampling at location 1   |   |                                    |             |                   |  |  |  |
| 9:10        | MW8  | -  | ved at location 8 & preparing for sampling                                  |   |                                    |             |                   |  |  |  |
| 12:00       |  |  | ne shipping samples.  |   |                                    |             |                   |  |  |  |
| 12.00       | CALL   | Done shipping sam  | ρις3.   |   |                                    |             |                   |  |  |  |
|             |  |  | Mo  | ving Forward  | (Next Steps)                       |             |                   |  |  |  |
| Action Item |  |  | 100   | •g . oa   | Deadline                           | %Completion | Responsible Party |  |  |  |
|             |  |  |   |   |                                    |             |                   |  |  |  |
| N/A         |  |  |   |   | N/A                                | N/A         | N/A               |  |  |  |
|             |  |  |   | Weather I   |                                    |             | Ta                |  |  |  |
|             |  | Two (2)  | days prior to GW L  | evel Monitorin  | ng event                           |             | Special Comments  |  |  |  |
|             | Monday   | , November 9, 2015   |   |   |                                    |             | N/A               |  |  |  |
|             |  |  |   |   |                                    |             | \$                |  |  |  |
|             | « Previous   |  |   |   | Next Day »                         |             |                   |  |  |  |
|             |  | Day  Weekly Monthly Custom   | Actual  | Average   | Next Day »                         |             |                   |  |  |  |
|             |  | Weekly Monthly Custom  | Actual  | Average   |                                    |             |                   |  |  |  |
|             | Daily Temperatur   | Weekly Monthly Custom  | Actual 28 °C  | Average<br>27 °C  |                                    |             |                   |  |  |  |
|             | Temperatur Mean Ter  | Weekly Monthly Custom  |   |   |                                    |             |                   |  |  |  |
|             | Temperatur Mean Ter  | Weekly Monthly Custom  e mperature uperature   | 28 °C   | 27°C  | Record                             |             |                   |  |  |  |
|             | Temperatur  Mean Ter  Max Tem  | Weekly Monthly Custom  e mperature sperature sperature sperature   | 28 °C<br>31 °C  | 27°C<br>31°C  | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day  | Weekly Monthly Custom  e mperature sperature sperature sperature   | 28 °C<br>31 °C  | 27°C<br>31°C  | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day  | Weekly Monthly Custom  e mperature perature perature s   | 28 °C<br>31 °C<br>25 °C   | 27 °C<br>31 °C<br>24 °C                                     | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day Heating I Month to   | Meekly Monthly Custom  The major of the second of the seco | 28 °C<br>31 °C<br>25 °C<br>0<br>0   | 27°C<br>31°C<br>24°C  | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I  | weekly Monthly Custom  e  mperature perature s Degree Days d date heating degree days ally heating degree days Degree Days   | 28 °C<br>31 °C<br>25 °C<br>0<br>0   | 27°C<br>31°C<br>24°C<br>0<br>0                              | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I Month to   | weekly Monthly Custom  e  mperature perature s Degree Days date heating degree days ly heating degree days dete cooling degree days dete cooling degree days   | 28 °C<br>31 °C<br>25 °C<br>0<br>0<br>0                                      | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0                      | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Tem Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I Month to   | Meekly Monthly Custom  The management of the monthly of the monthl | 28 °C<br>31 °C<br>25 °C<br>0<br>0<br>0<br>18<br>150<br>5424                 | 27°C<br>31°C<br>24°C<br>0<br>0                              | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I Month to Year to d Growing   | weekly Monthly Custom  e  mperature perature s Degree Days date heating degree days ly heating degree days dete cooling degree days dete cooling degree days   | 28 °C<br>31 °C<br>25 °C<br>0<br>0<br>0                                      | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0                      | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I Month to Year to d Growing Moisture  | weekly Monthly Custom  The management of the second of the | 28 °C<br>31 °C<br>25 °C<br>0<br>0<br>0<br>18<br>150<br>5424<br>32 (Base 50) | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0                      | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Tem Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling E Month to Year to d Growing Moisture Dew Poir   | weekly Monthly Custom  re  Imperature Impera | 28 °C<br>31 °C<br>25 °C<br>0<br>0<br>0<br>18<br>150<br>5424<br>32 (Base 50) | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0                      | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Tem Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling E Month to Year to d Growing Moisture Dew Poir Average   | weekly Monthly Custom  re  mperature perature s Degree Days date heating degree days ly heating degree days date cooling degree days late cooling degree days Degree Days ht Humidity  | 28 °C 31 °C 25 °C  0 0 0 18 150 5424 32 [Base 50]                           | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0                      | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Tem Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling E Month to Year to d Growing Moisture Dew Poir Average Maximum                                 | weekly Monthly Custom  The management of the second of the | 28 °C 31 °C 25 °C  0 0 0 18 150 5424 32 (Base 50)  23 °C 75 91              | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0                      | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Tem Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I Month to Year to d Growing Moisture Dew Poir Average Maximum Minimum                         | weekly Monthly Custom  re  mperature perature s Degree Days date heating degree days ally heating degree days date cooling degree days late cooling degree days hat Humidity in Humidity humidity humidity   | 28 °C 31 °C 25 °C  0 0 0 18 150 5424 32 [Base 50]                           | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0                      | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Tem Max Tem Min Tem; Degree Day Heating I Month to Since 1 Ju Cooling I Month to Year to d Growing Moisture Dew Poir Average Maximum Minimum Precipitatio            | weekly Monthly Custom  The management of the present of the presen | 28 °C 31 °C 25 °C  0 0 18 150 5424 32 (Base 50)  23 °C 75 91 59             | 27°C<br>31°C<br>24°C<br>0<br>0<br>0<br>16<br>147<br>5106    | Record  32 °C (1997)  18 °C (1898) |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I Month to Year to d Growing Moisture Dew Poir Average Maximur Minimur Precipitatio            | weekly Monthly Custom  The management of the present of the presen | 28 °C 31 °C 25 °C  0 0 18 150 5424 32 (Base 50)  23 °C 75 91 59             | 27 °C<br>31 °C<br>24 °C<br>0<br>0<br>0<br>16<br>147<br>5106 | Record 32 °C (1997)                |             |                   |  |  |  |
|             | Temperatur Mean Ter Max Tem Min Temp Degree Day Heating I Month to Since 1 Ju Cooling I Month to Year to d Growing Moisture Dew Poir Average Maximur Minimum Precipitatio Precipitat | weekly Monthly Custom  The management of the present of the presen | 28 °C 31 °C 25 °C  0 0 18 150 5424 32 (Base 50)  23 °C 75 91 59             | 27°C<br>31°C<br>24°C<br>0<br>0<br>0<br>16<br>147<br>5106    | Record  32 °C (1997)  18 °C (1898) |             |                   |  |  |  |

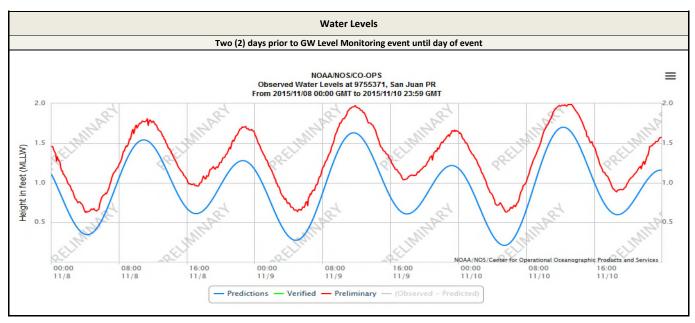


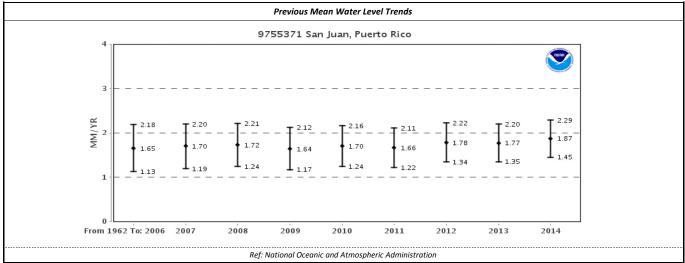
| Project: | CAF MW Weekly Groundwater levels reading |       |                   |  |  |  |
|----------|--|-------|-------------------|--|--|--|
| Address: | LMMIA                                    | Date: | November 11, 2015 |  |  |  |





| Project: | CAF MW Weekly Groundwater levels reading |       |                   |  |
|----------|--|-------|-------------------|--|
| Address: | LMMIA                                    | Date: | November 11, 2015 |  |







| Project: | CAF Groundwater Monitoring Wells |       |             |
|----------|----------------------------------|-------|-------------|
| Address: | LMMIA                            | Date: | November-15 |

#### **Weather History**

#### Climatological Data for SAN JUAN L M MARIN AP, PR - November 2015

Click column heading to sort ascending, click again to sort descending.

| Date       | Temperature |         |         | HDD       | CDD | Precipitation | New Snow      | Snow Depth |           |
|------------|-------------|---------|---------|-----------|-----|---------------|---------------|------------|-----------|
| Date       | Maximum     | Minimum | Average | Departure | HUU | CDD           | Frecipitation | New Show   | Show Depu |
| 2015-11-01 | 87          | 74      | 80.5    | -1.2      | 0   | 16            | 1.78          | 0.0        | 0         |
| 2015-11-02 | 88          | 74      | 81.0    | -0.6      | 0   | 16            | 0.44          | 0.0        | 0         |
| 2015-11-03 | 84          | 77      | 80.5    | -1.0      | 0   | 16            | 0.86          | 0.0        | 0         |
| 2015-11-04 | 87          | 76      | 81.5    | 0.0       | 0   | 17            | 0.06          | 0.0        | 0         |
| 2015-11-05 | 88          | 77      | 82,5    | 1.1       | 0   | 18            | 0.18          | 0.0        | 0         |
| 2015-11-06 | 87          | 76      | 81,5    | 0.2       | 0   | 17            | 0.02          | 0.0        | 0         |
| 2015-11-07 | 85          | 75      | 80.0    | -1.2      | 0   | 15            | 0.50          | 0.0        | 0         |
| 2015-11-08 | 88          | 76      | 82.0    | 0.9       | 0   | 17            | 0.03          | 0.0        | 0         |
| 2015-11-09 | 88          | 77      | 82,5    | 1.4       | 0   | 18            | 0.21          | 0.0        | 0         |
| 2015-11-10 | 88          | 75      | 81.5    | 0.5       | 0   | 17            | 1.44          | 0.0        | 0         |
| 2015-11-11 | 87          | 76      | 81.5    | 0.6       | 0   | 17            | T             | 0.0        | 0         |
| 2015-11-12 | 87          | 77      | 82.0    | 1.2       | 0   | 17            | T             | 0.0        | 0         |
| 2015-11-13 | 88          | 77      | 82,5    | 1.8       | 0   | 18            | 0.01          | 0.0        | 0         |
| 2015-11-14 | 87          | 77      | 82.0    | 1.4       | 0   | 17            | 0.02          | 0.0        | 0         |
| 2015-11-15 | 88          | 76      | 82.0    | 1.4       | 0   | 17            | 0.01          | 0.0        | 0         |
| 2015-11-16 | 87          | 77      | 82.0    | 1.5       | 0   | 17            | 0.97          | 0.0        | 0         |
| 2015-11-17 | 88          | 75      | 81.5    | 1.1       | 0   | 17            | 0.22          | 0.0        | 0         |
| 2015-11-18 | 88          | 77      | 82.5    | 2.2       | 0   | 18            | 0.03          | 0.0        | 0         |
| 2015-11-19 | 86          | 75      | 80.5    | 0.3       | 0   | 16            | 0.14          | 0.0        | 0         |
| 2015-11-20 | 85          | 75      | 80.0    | -0.2      | 0   | 15            | 0.03          | 0.0        | 0         |
| 2015-11-21 | 83          | 73      | 78,0    | -2.1      | 0   | 13            | 0.06          | 0.0        | 0         |
| 2015-11-22 | 85          | 73      | 79.0    | -1.0      | 0   | 14            | 0.03          | 0.0        | 0         |
| 2015-11-23 | 89          | 75      | 82.0    | 2.1       | 0   | 17            | 0.00          | 0.0        | 0         |
| 2015-11-24 | 90          | 76      | 83.0    | 3.1       | 0   | 18            | 0.00          | 0.0        | 0         |
| 2015-11-25 | 87          | 75      | 81.0    | 1.2       | 0   | 16            | 0.01          | 0.0        | 0         |
| 2015-11-26 | 85          | 75      | 80.0    | 0.3       | 0   | 15            | 0.29          | 0.0        | 0         |
| 2015-11-27 | 90          | 76      | 83.0    | 3.3       | 0   | 18            | 0.00          | 0.0        | 0         |
| 2015-11-28 | 84          | 75      | 79.5    | -0.1      | 0   | 15            | 1.06          | 0.0        | 0         |
| 2015-11-29 | 84          | 72      | 78,0    | -1.5      | 0   | 13            | 0.31          | 0.0        | 0         |
| 2015-11-30 | 86          | 76      | 81.0    | 1.5       | 0   | 16            | 0.01          | 0.0        | 0         |
| Sum        | 2604        | 2265    | -       | -         | 0   | 491           | 8.72          | 0.0        | -         |
| Average    | 86.8        | 75,5    | 81.2    | 0.6       | -   | -             | -             | -          | 0.0       |
| Normal     | 85.9        | 75.2    | 80.6    | -         | 0   | 466           | 6.35          | 0.0        | -         |

Ref: NOAA NWSF; NOWData - NOAA Online Weather Dat; San Juan LMMIA Statioi



| Project: | CAF MW Weekly Groundwater levels reading |       |                   |  |
|----------|--|-------|-------------------|--|
| Address: | LMMIA                                    | Date: | December 17, 2015 |  |

| Phone:      | 787-751-7810 | CHES Rep                           | oresentative:                | NDM                    |             |                   |  |  |
|-------------|--------------|------------------------------------|------------------------------|------------------------|-------------|-------------------|--|--|
| Time        | Location     |                                    | A                            | ctivity / Observations |             |                   |  |  |
| 7:30        | CAF1         | CHES representative arrived        |                              |                        |             |                   |  |  |
| 8:25        | CAF1         | J&S personnel arrived              |                              |                        |             |                   |  |  |
| 8:42        | MW5          | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 8:49        | MW5          | Done                               |                              |                        |             |                   |  |  |
| 8:50        | MW7          | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 8:56        | MW7          | Done                               |                              |                        |             |                   |  |  |
| 8:57        | MW9          | Arrived for levels readings a      | nd the wells are block       | ked with UPS car.      |             |                   |  |  |
| 9:16        | MW9          | Done                               |                              |                        |             |                   |  |  |
| 9:17        | MW10         | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 9:21        | MW10         | Done                               |                              |                        |             |                   |  |  |
| 9:23        | MW11         | Arrived for levels readings.       | Arrived for levels readings. |                        |             |                   |  |  |
| 9:29        | MW11         | Done                               |                              |                        |             |                   |  |  |
| 9:33        | MW6          | Arrived for levels readings.       | Arrived for levels readings. |                        |             |                   |  |  |
| 9:37        | MW6          | Done                               |                              |                        |             |                   |  |  |
| 9:38        | MW3          | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 9:43        | MW3          | Done                               |                              |                        |             |                   |  |  |
| 9:48        | MW1          | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 9:52        | MW1          | Done                               |                              |                        |             |                   |  |  |
| 9:53        | MW4          | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 9:56        | MW4          | Done                               |                              |                        |             |                   |  |  |
| 9:58        | MW2          | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 10:02       | MW2          | Done                               |                              |                        |             |                   |  |  |
| 10:05       | MW8          | Arrived for levels readings.       |                              |                        |             |                   |  |  |
| 10:08       | MW8          | Done                               |                              |                        |             |                   |  |  |
| 10:20       | CAF1         | CHES and J&S Personnel Checked out |                              |                        |             |                   |  |  |
|             | ı            |                                    | Moving Forward (             | Next Steps)            |             |                   |  |  |
| Action Item |              |                                    |                              | Deadline               | %Completion | Responsible Party |  |  |
| N/A         |              |                                    |                              | N/A                    | N/A         | N/A               |  |  |



| Project: | CAF MW Weekly Groundwater levels reading |       |                   |
|----------|--|-------|-------------------|
| Address: | LMMIA                                    | Date: | December 17, 2015 |

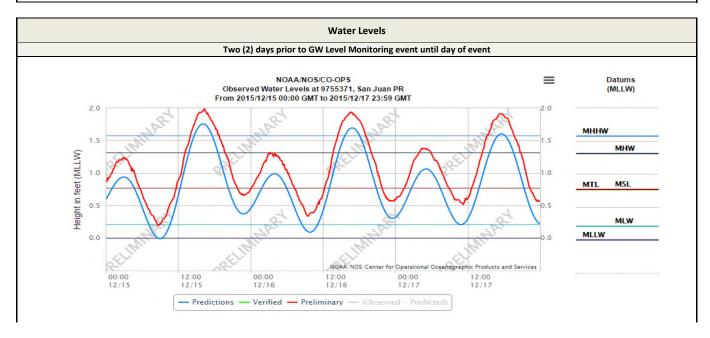
| Two (2) down                      | rior to GW Level | Veather Hist | <u> </u>       | Special Comme |
|-----------------------------------|------------------|--------------|----------------|---------------|
| Two (2) days p                    | nor to Gw Level  | wonitoring e | event          | Special Comme |
| Tuesday, December 15, 2015        |                  |              |                | N/A           |
| « Previous Day                    |                  |              | Next Day »     |               |
| Daily Weekly Monthly Custom       |                  |              |                |               |
|                                   | Actual           | Average      | Record         |               |
| Temperature                       |                  |              |                |               |
| Mean Temperature                  | 27 °C            | 26 °C        |                |               |
| Max Temperature                   | 29 °C            | 29 °C        | 32 °C (1997)   |               |
| Min Temperature                   | 24 °C            | 23 °C        | 19 °C (1906)   |               |
| Degree Days                       |                  |              |                |               |
| Heating Degree Days               | 0                | 0            |                |               |
| Month to date heating degree days | 0                | 0            |                |               |
| Since 1 July heating degree days  | 0                | 0            |                |               |
| Cooling Degree Days               | 15               | 14           |                |               |
| Month to date cooling degree days | 237              | 210          |                |               |
| Year to date cooling degree days  | 6002             | 5636         |                |               |
| Growing Degree Days               | 30 (Base 50)     |              |                |               |
| Moisture                          |                  |              |                |               |
| Dew Point                         | 21 °C            |              |                |               |
| Average Humidity                  | 69               |              |                |               |
| Maximum Humidity                  | 82               |              |                |               |
| Minimum Humidity                  | 55               |              |                |               |
| Precipitation                     |                  |              |                |               |
| Precipitation                     | 0.00 mm          | 4.32 mm      | 8.33 mm (1934) |               |
| Month to date precipitation       | 2.09             | 2.54         |                |               |
| Year to date precipitation        | 39.92            | 53.87        |                |               |

| One (1) day prior to GW Le        | vel Monitoring e | vent    |                | Special Com |
|-----------------------------------|------------------|---------|----------------|-------------|
| Wednesday, December 16, 2015      | 5                |         |                | N           |
| « Previous Day                    |                  |         | Next Day »     |             |
| Daily Weekly Monthly Custom       |                  |         |                |             |
| Dany Honary Caston                | Actual           | Average | Record         |             |
| Temperature                       |                  |         |                |             |
| Mean Temperature                  | 27 °C            | 26 °C   |                |             |
| Max Temperature                   | 31 °C            | 29 °C   | 32 °C [1980]   |             |
| Min Temperature                   | 24 °C            | 23 °C   | 18 °C (1964)   |             |
| Degree Days                       |                  |         |                |             |
| Heating Degree Days               | 0                | 0       |                |             |
| Month to date heating degree days | 0                | 0       |                |             |
| Since 1 July heating degree days  | 0                | 0       |                |             |
| Cooling Degree Days               | 16               | 14      |                |             |
| Month to date cooling degree days | 253              | 224     |                |             |
| Year to date cooling degree days  | 6018             | 5650    |                |             |
| Growing Degree Days               | 31 (Base 50)     |         |                |             |
| Moisture                          |                  |         |                |             |
| Dew Point                         | 21 °C            |         |                |             |
| Average Humidity                  | 64               |         |                |             |
| Maximum Humidity                  | 82               |         |                |             |
| Minimum Humidity                  | 46               |         |                |             |
| Precipitation                     |                  |         |                |             |
| Precipitation                     | 0.00 mm          | 4.06 mm | 9.70 mm (2014) |             |
| Month to date precipitation       | 2.09             | 2.70    |                |             |
| Year to date precipitation        | 39.92            | 54.03   |                |             |



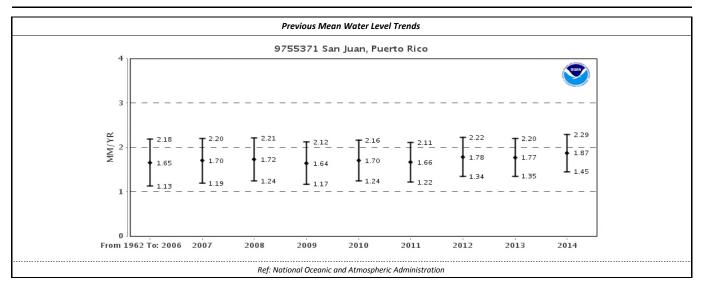
| Project: | CAF MW Weekly Groundwater levels reading |       |                   |
|----------|--|-------|-------------------|
| Address: | LMMIA                                    | Date: | December 17, 2015 |

| Day of GW Leve                    | Weather I    | •       |                | Special Commen |
|-----------------------------------|--------------|---------|----------------|----------------|
| Thursday, December 17, 2015       |              | -       |                | N/A            |
| « Previous Day                    |              |         | Next Day »     |                |
| Daily Weekly Monthly Custom       |              |         |                |                |
| Daily Weekly Montally Custom      | Actual       | Average | Record         |                |
| Temperature                       |              |         |                |                |
| Mean Temperature                  | 25 °C        | 26 °C   |                |                |
| Max Temperature                   | 28 °C        | 29 °C   | 32 °C (1987)   |                |
| Min Temperature                   | 23 °C        | 23 °C   | 18 °C [1916]   |                |
| Degree Days                       |              |         |                |                |
| Heating Degree Days               | 0            | 0       |                |                |
| Month to date heating degree days |              | 0       |                |                |
| Since 1 July heating degree days  |              | 0       |                |                |
| Cooling Degree Days               | 12           | 14      |                |                |
| Month to date cooling degree days |              | 238     |                |                |
| Year to date cooling degree days  |              | 5664    |                |                |
| Growing Degree Days               | 27 [Base 50] |         |                |                |
| Moisture                          |              |         |                |                |
| Dew Point                         | 21 °C        |         |                |                |
| Average Humidity                  | 77           |         |                |                |
| Maximum Humidity                  | 85           |         |                |                |
| Minimum Humidity                  | 61           |         |                |                |
| Precipitation                     |              |         |                |                |
| Precipitation                     | 0.0 mm       | 4.06 mm | 3.20 mm [1948] |                |
| Month to date precipitation       |              | 2.86    |                |                |
| Year to date precipitation        |              | 54.19   |                |                |





| Project: | CAF MW Weekly Groundwater levels reading |       |                   |  |
|----------|--|-------|-------------------|--|
| Address: | LMMIA                                    | Date: | December 17, 2015 |  |





| Project: | CAF Groundwater Monitoring Wells |       |             |  |
|----------|----------------------------------|-------|-------------|--|
| Address: | LMMIA                            | Date: | December-15 |  |

#### **Weather History**

#### Climatological Data for SAN JUAN L M MARIN AP, PR - December 2015

Click column heading to sort ascending, click again to sort descending.

| Date       |         | Temper  | rature  |           | HDD | CDD | Precipitation | New Snow | Snow Deptl |
|------------|---------|---------|---------|-----------|-----|-----|---------------|----------|------------|
| Date       | Maximum | Minimum | Average | Departure | нии | СЪБ | Precipitation | New Show | Show Depti |
| 2015-12-01 | 86      | 76      | 81.0    | 1.6       | 0   | 16  | 0.45          | M        | M          |
| 2015-12-02 | 88      | 76      | 82.0    | 2.6       | 0   | 17  | 0.01          | M        | M          |
| 2015-12-03 | 87      | 77      | 82.0    | 2.7       | 0   | 17  | 0.01          | M        | M          |
| 2015-12-04 | 86      | 76      | 81.0    | 1.8       | 0   | 16  | 0.02          | M        | M          |
| 2015-12-05 | 86      | 77      | 81.5    | 2.3       | 0   | 17  | 0.02          | M        | M          |
| 2015-12-06 | 84      | 74      | 79.0    | -0.1      | 0   | 14  | 0.16          | M        | M          |
| 2015-12-07 | 83      | 75      | 79.0    | -0.1      | 0   | 14  | 1.41          | M        | M          |
| 2015-12-08 | 86      | 74      | 80.0    | 1.0       | 0   | 15  | 0.01          | M        | M          |
| 2015-12-09 | 88      | 75      | 81.5    | 2.5       | 0   | 17  | 0.00          | M        | M          |
| 2015-12-10 | 88      | 74      | 81.0    | 2.1       | 0   | 16  | 0.00          | M        | M          |
| 2015-12-11 | 87      | 74      | 80.5    | 1.6       | 0   | 16  | T             | M        | M          |
| 2015-12-12 | 87      | 74      | 80.5    | 1.7       | 0   | 16  | T             | M        | M          |
| 2015-12-13 | 86      | 74      | 80.0    | 1.2       | 0   | 15  | 0.00          | M        | M          |
| 2015-12-14 | 86      | 76      | 81.0    | 2.3       | 0   | 16  | 0.00          | M        | M          |
| 2015-12-15 | 85      | 75      | 80.0    | 1.3       | 0   | 15  | 0.00          | 0.0      | 0          |
| 2015-12-16 | 87      | 75      | 81.0    | 2.4       | 0   | 16  | 0.00          | 0.0      | 0          |
| 2015-12-17 | 86      | 74      | 80.0    | 1.4       | 0   | 15  | 0.05          | 0.0      | 0          |
| 2015-12-18 | 86      | 74      | 80.0    | 1.5       | 0   | 15  | T             | 0.0      | 0          |
| 2015-12-19 | 85      | 74      | 79.5    | 1.0       | 0   | 15  | 0.05          | 0.0      | 0          |
| 2015-12-20 | 83      | 74      | 78.5    | 0.1       | 0   | 14  | 0.14          | 0.0      | 0          |
| 2015-12-21 | 86      | 75      | 80.5    | 2.1       | 0   | 16  | 0.07          | 0.0      | 0          |
| 2015-12-22 | 84      | 75      | 79.5    | 1.1       | 0   | 15  | 0.07          | 0.0      | 0          |
| 2015-12-23 | 85      | 76      | 80.5    | 2.2       | 0   | 16  | 0.02          | 0.0      | 0          |
| 2015-12-24 | 85      | 76      | 80.5    | 2.2       | 0   | 16  | 0.11          | 0.0      | 0          |
| 2015-12-25 | 84      | 75      | 79.5    | 1.3       | 0   | 15  | 0.18          | 0.0      | 0          |
| 2015-12-26 | 84      | 74      | 79.0    | 0.8       | 0   | 14  | 0.12          | 0.0      | 0          |
| 2015-12-27 | 84      | 73      | 78.5    | 0.4       | 0   | 14  | 0.07          | 0.0      | 0          |
| 2015-12-28 | 83      | 73      | 78.0    | -0.1      | 0   | 13  | 0.17          | 0.0      | 0          |
| 2015-12-29 | 84      | 74      | 79.0    | 0.9       | 0   | 14  | 0.01          | 0.0      | 0          |
| 2015-12-30 | 83      | 74      | 78.5    | 0.5       | 0   | 14  | 0.23          | 0.0      | 0          |
| 2015-12-31 | 84      | 72      | 78.0    | 0.0       | 0   | 13  | 0.09          | 0.0      | 0          |
| Sum        | 2646    | 2315    | -       | -         | 0   | 472 | 3.47          | 0.0      | -          |
| Average    | 85.4    | 74.7    | 80.0    | 1,3       | -   | -   |               | -        | 0.0        |
| Normal     | 83.9    | 73.4    | 78.7    | -         | 0   | 423 | 5.02          | 0.0      | -          |

Ref: NOAA NWSF; NOWData - NOAA Online Weather Dat; San Juan LMMIA Statioi



### Fourth Bimonthly Report

Groundwater Monitoring Wells at the Luis Muñoz Marin International Airport (LMMIA)

#### 3.0 GROUNDWATER LEVELS DATABASE

The following groundwater levels database includes data corresponding to the twenty-two (22) wells installed at the LMMIA.



## Fernando L. Rodríguez, P.E. & Associates Chemical/Environmental Engineering & Industrial Hygiene Consultants

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#### **Groundwater Monitoring Wells Construction and Sampling Project**

GW Level Readings

**GW Level Monitoring Start:** May 18, 2015 GW Level Readings To-Date: December 17, 2015

|                    | Well ID            | MW1S   | MW1D   | MW2S   | MW2D   | MW3S  | MW3D   | MW4S  | MW4D   | MW5S   | MW5D   | MW6S  | MW6D  | MW7S   | MW7D  | MW8S   | MW8D  | MW9S   | MW9D  | MW10S  | MW10D  | MW11S | MW11[  |
|--------------------|--------------------|--------|--------|--------|--------|-------|--------|-------|--------|--------|--------|-------|-------|--------|-------|--------|-------|--------|-------|--------|--------|-------|--------|
|                    | Well depth         | 10'    | 20.5'  | 10'    | 20'    | 10'   | 20'    | 10'   | 20' 5" | 10'    | 20'    | 10'   | 20.5' | 10'    | 20.5' | 10'    | 20.5' | 10'    | 20.5' | 10'    | 20.5'  | 10'   | 23.5'  |
| Week of            | Date               |        |        |        |        |       |        |       |        |        |        |       |       |        |       |        |       |        |       |        |        |       |        |
| May 18, 2015       | May 18, 2015       | 6' 3"  | 6' 4"  | 4' 7"  | 4' 4"  | -     | -      | 3' 5" | 2' 8"  | 6' 9"  | 8' 6"  | -     | -     | -      | -     | -      | -     | -      | -     | -      | -      | -     | -      |
| May 18, 2015       | May 19, 2015       | -      | -      | -      | -      | -     | -      | -     | -      | -      | -      | 6' 3" | 6' 4" | 6'     | 6' 6" | -      | -     | 6'     | 13'   | 6' 9"  | 6' 9"  | 6' 3" | 9'     |
| May 18, 2015       | May 20, 2015       | ı      | -      | -      | -      | 6'4"  | 6'5"   | -     | -      | -      | -      | -     | -     | -      | -     | 2'8"   | 3'    | 7'     | 7'7"  | -      | -      | 7'4"  | 7'4"   |
| May 25, 2015       | May 28, 2015       | 6'     | 6'     | 4'1"   | 4'     | 6'5"  | 6'6"   | 2'11" | 2'11"  | NR     | 6'10"  | 5'10" | 6'6"  | 5'11"  | 6'11" | 3'     | 3'1"  | 6'11"  | 7'2"  | 6'6"   | 6'8"   | 7'2"  | 7'     |
| June 1, 2015       | June 4, 2015       | 6' 3"  | 6' 5"  | 4'     | 3' 6"  | 6' 3" | 6' 2"  | 3'    | 3'     | 6'     | 6' 8"  | 5' 6" | 6'    | 5' 8"  | 6' 1" | 2' 8"  | 2' 2" | 5' 6"  | 7'    | 6' 3"  | 6' 3"  | 6' 7" | 7'     |
| June 8, 2015       | June 11, 2015      | 5' 9"  | 5' 11" | 4' 1"  | 3' 10" | 7'    | 7'     | 3'    | 3' 3"  | 6' 11" | 7' 1"  | 6' 3" | 6' 6" | 6' 1"  | 4' 3" | 2' 11" | 3' 6" | 6' 6"  | 7' 1" | 7'     | 6' 10" | 7' 3" | 7' 6"  |
| June 15, 2015      | June 18, 2015      | -      | -      | 4'     | 3' 6"  | -     | -      | 3' 2" | 2' 11" | -      | -      | -     | -     | -      | -     | -      | -     | -      | -     | -      | -      | -     | -      |
| June 15, 2015      | June 19, 2015      | 5' 10" | 5' 7"  | -      | -      | 6' 4" | 6' 3"  | -     | -      | 6' 11" | 6' 5"  | 5' 6" | 6'    | 5' 7"  | 4' 1" | 2' 11" | 3'    | 5' 11" | 6' 6" | 6' 4"  | 6' 4"  | 7'    | 7'     |
| June 22, 2015      | June 25, 2015      | 6'     | 6' 4"  | 4' 4"  | 4' 1"  | 6' 9" | 6' 10" | 3' 4" | 3' 3"  | 6' 9"  | 6' 11" | 6' 2" | 6' 4" | 6' 1"  | 5'    | 3'     | 3' 4" | 5' 10" | 6' 7" | 6' 10" | 6' 9"  | 7' 6" | 7' 5"  |
| June 29, 2015      | July 2, 2015       | 5' 11" | 6' 3"  | 4' 4"  | 4' 1"  | 6' 7" | 6' 9"  | 3' 3" | 3' 2"  | 6' 9"  | 6' 11" | 6' 2" | 6' 5" | 6' 1"  | 6' 4" | 3'     | 3' 4" | 5' 10" | 6' 6" | 6' 8"  | 6' 8"  | 7' 2" | 7' 3"  |
| July 6, 2015       | July 9, 2015       | 5' 10" | 6' 3"  | 4' 3"  | 4'     | 6' 8" | 6' 9"  | 3' 4" | 3' 2"  | 6' 8"  | 6' 10" | 6' 2" | 6' 4" | 6' 1"  | 6' 3" | 3'     | 3' 4" | 5' 10" | 6' 4" | 6' 8"  | 6' 8"  | 7' 7" | 7' 4"  |
| July 13, 2015      | July 16, 2015      | 6'     | 6' 2"  | 4' 2"  | 3' 11" | 6' 6" | 6' 8"  | 3' 3" | 3' 2"  | 6' 8"  | 6' 10" | 6' 2" | 6' 4" | 6' 1"  | 6' 4" | 2' 11" | 3' 3" | 6' 3"  | 6' 5" | 6' 7"  | 6' 7"  | 7'    | 7' 3"  |
| July 20, 2015      | July 21, 2015      | -      | -      | -      | -      | 6' 7" | 6' 9"  | -     | -      | 6' 7"  | 6' 10" | 6' 1" | 6' 4" | 6'     | 6' 4" | -      | -     | 6' 2"  | 6' 7" | 6' 7"  | 6' 7"  | 7' 3" | 7' 4"  |
| July 20, 2015      | July 22, 2015      | 6'     | 6' 4"  | 4' 2"  | 4'     | -     | -      | 3' 4" | 3' 2"  | -      | -      | -     | -     | -      | -     | 3'     | 3' 3" | -      | -     | -      | -      | -     | -      |
| July 27, 2015      | July 30, 2015      | 6'     | 6' 2"  | 4' 4"  | 4'     | 6' 7" | 6' 8"  | 3' 4" | 3' 1"  | 6' 8"  | 6' 8"  | 6' 2" | 6' 3" | 6'     | 7' 7" | 3' 1"  | 3' 5" | 6' 1"  | 6' 3" | 6' 7"  | 6' 7"  | 7' 8" | 7' 6"  |
| August 3, 2015     | August 6, 2015     | 6' 1"  | 6' 2"  | 4' 2"  | 4'     | 6' 8" | 6' 9"  | 3' 4" | 3' 2"  | 6' 7"  | 6' 10" | 6' 5" | 6' 4" | 6' 2"  | 7' 3" | 3' 1"  | 3' 4" | 6' 10" | 6' 2" | 6' 8"  | 6' 10" | 7' 9" | 7' 7"  |
| August 10, 2015    | August 12, 2015    | 6'1"   | 6'1"   | 4' 2"  | 3'9"   | 6'6"  | 6'7"   | 3'    | 3'     | 6'7"   | 6'9"   | 6'7"  | 6'1"  | 6'     | 6'2"  | 3'     | 3'2"  | 5'9"   | 6'2"  | 6'6"   | 6'6"   | 7'6"  | 7'6"   |
| August 17, 2015    | August 20, 2015    | 6'     | 5' 10" | 3' 10" | 4' 1"  | 6' 8" | 6' 7"  | 3'    | 3' 1"  | 6' 7"  | 6' 8"  | 6' 1" | 6' 1" | 5' 11" | 6' 2" | 2' 10" | 3'    | 5' 6"  | 6'    | 6' 3"  | 6' 4"  | 6' 8" | 6' 11" |
| August 24, 2015    | August 27, 2015    | 6'     | 6'     | 4'1"   | 3'9"   | 6'5"  | 6'6"   | 3'    | 2'11"  | 6'5"   | 6'8"   | 6'    | 6'1"  | 5'10"  | 6'    | 2'7"   | 3'    | 5'5"   | 5'9"  | 6'2"   | 6'3"   | 6'5"  | 6'8"   |
| September 14, 2015 | September 15, 2015 | -      | -      | -      | -      | 6'2"  | 6'5"   | -     | -      | 6'5"   | 6'7"   | -     | -     | -      | -     | 2'9"   | 2'11" | 5'6"   | 5'7"  | 6'3"   | 6'1"   | 6'7"  | 6'8"   |
| September 14, 2015 | September 16, 2015 | 6'     | 6'     | 4'0"   | 3'9"   | -     | -      | 3'1"  | 3'     | -      | -      | 5'9"  | 6'    | 5'9"   | 6'    | -      | -     | -      | -     | -      | -      | -     | -      |
| October 12, 2015   | October 15, 2015   | 5'10"  | 511"   | 4'1"   | 3'10"  | 6'6"  | 6'5"   | 3'1"  | 3'     | 6'6"   | 6'7"   | 5'11" | 6'1"  | 5'10"  | 6'2"  | 2'10"  | 3'1"  | 5'9"   | 5'10" | 6'5"   | 6'4"   | 7'2"  | 7'1"   |
| November 9, 2015   | November 10, 2015  | -      | -      | -      | -      | 6'3"  | 6'2"   | -     | -      | 6'6"   | 6'6"   | 5'1"  | 5'10" | 5'8"   | 6'1"  | -      | -     | 5'     | 6'1"  | 5'10"  | 5'9"   | 4'2"  | 5'10"  |
| November 9, 2015   | November 11, 2015  | 5'7"   | 5'10"  | 3'2"   | 3'6"   | -     | -      | 2'11" | 3'     | -      | -      | -     | -     | -      | -     | -      | -     | -      | -     | -      | -      | -     | -      |
| December 14, 2015  | December 17, 2015  | 5'9"   | 6'1"   | 4'1"   | 3'10"  | 6'6"  | 6'6"   | 3'1"  | 3'4"   | 6'3"   | 7'1"   | 5'1"  | 6'    | 5'8"   | 9'11" | 2'8"   | 3'10" | 5'3"   | 5'3"  | 6'3"   | 6'4"   | 6'7"  | 6'6"   |

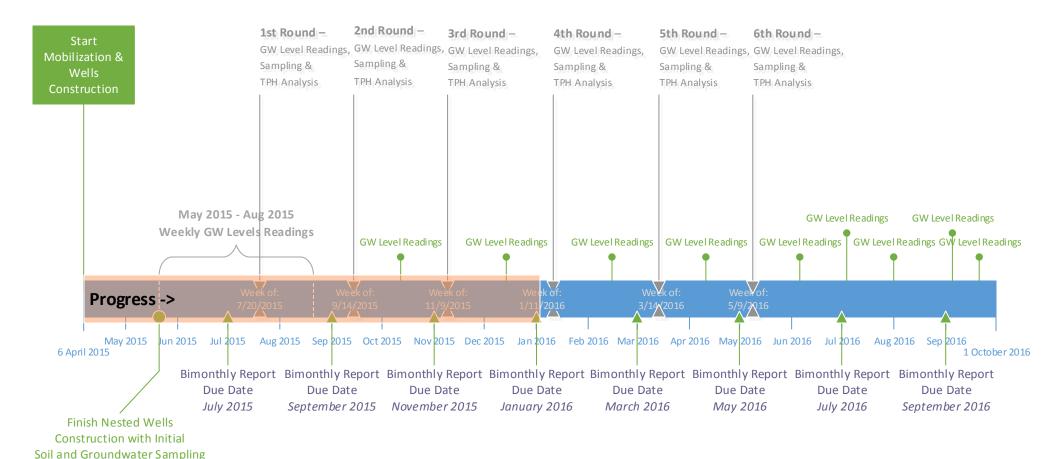


## Fourth Bimonthly Report

Groundwater Monitoring Wells at the Luis Muñoz Marin International Airport (LMMIA)

### 4.0 PROJECT PROGRESS AND/OR PROPOSED SCHEDULE

The following pages provide project progress details and an updated proposed schedule for the tasks agreed upon with U.S. EPA.



Rev.: June 3, 2015

Caribbean Airport Facilities, Inc.

LMMIA, Carolina, PR

Eleven (11) Nested Groundwater Monitoring Wells

Construction with Bimonthly

Sampling/Analysis Timeline

#### Notes:

- 1. During the months of April and May 2015, groundwater (GW) and soil samples were collected at each one of the nested wells as they were constructed.
- 2. The following 3-month period, on a weekly basis, GW levels (shallow and deep) are being logged, and monthly thereafter.
- 3. After the initial sampling, the nested wells are to be sampled and samples to be analyzed for TPH analysis by the designated laboratory on a bimonthly basis (every 2 months) for the first year.

M. LaReau (EPA): After sampling and water level measurements have commenced, CAF can make a recommendation based on the data to alter this schedule. At that time, EPA will review all documents presented to determine if a change is warranted.



## Fourth Bimonthly Report

Groundwater Monitoring Wells at the Luis Muñoz Marin International Airport (LMMIA)

#### 5.0 REFERENCES

- 1 Weather Underground. Historical Weather. [Internet]. 2015 Available from: <a href="http://www.wunderground.com/history/">http://www.wunderground.com/history/</a>.
- 2 Center for Operational Oceanographic Products and Services. Observed Tides/Water Levels at 9755371, San Juan, PR. [Internet]. Available from: http://tidesandcurrents.noaa.gov/waterlevels.html.

### DATA VALIDATION REPORT FOR THE NOVEMBER, 2015 DATA COLLECTION EVENTS PERFORMED AT

CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Prepared for

Eng. Fernando Rodríguez Fernando L. Rodríguez, P.E. & Associates

November, 2015

Prepared by

Rafael Infante Environmental Consultant Chemist License 1888

### TABLE OF CONTENT

| Introduction      | 3 |
|-------------------|---|
| Validation Report | 5 |
| Appendix (A & B)  | 7 |

#### INTRODUCTION

The purpose of the independent data validation process for the Caribbean Airport Facility (CAF) GW well construction project is to assess the effect of the overall analytical process on the usability of the data. The validation process includes the verification and interpretation of analytical data, which provides the end user with a more complete understanding of the quality and defensibility of the laboratory data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the analytical methods and regulatory requirements; either the laboratory did, or did not, analyze the samples within the limits of the established analytical method. Evaluation of matrix interferences is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, and reproducibility of duplicate sample results.

After the final analytical results were released by the laboratory, both the sample and QC data were carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. Additionally, the QC data were reviewed to ascertain whether they were within the laboratory-defined limits for accuracy and precision. Any non-conforming data were discussed in the laboratory's data package case narrative. Additional non-conforming (qualified or rejected data) form part of this report.

The sample results were assessed according to USEPA data validation guidance documents:

- USEPA Region 2, SOP HW-24, Standard Operating Procedure for the Validation of Organic Data Acquired using SW-846 Method 8260B (August, 2009-Revision 2), the USEPA National Functional Guidelines for Low/Medium Concentration Organic Data Review (SOW SOM01.2 SOP HW-33, August 2009 Revision 2), the USEPA National Functional Guidelines for Organic Data Review for Low Concentration Water (SOP HW-13, August, 2009-Revision 3) is used as a primary guidance document. Also, QC criteria from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update III, December 1996)," specifically for Methods 8000/8021B are utilized. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.
- Data Validation Standard Operating Procedure for Organic Analysis of Low/Medium Concentration Semivolatile Acquired using SW-846 Method 8270C (SOW SOM01.2-SOP HW-35, August 2009 Revision 1); Validation Semivolatile Organic Compounds by SW846 8270 (SOP HW-22, August, 2009 Revision 4). Also, the QC criteria from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update III, December 1996)," specifically for Methods 8000/8015C are utilized. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

Sample copies of the Data Review Worksheets utilized for the validation process are included in Appendix A. Completed data validation checklist and raw data are kept on our files. The following USEPA primary flags were used to qualify the data for this study:

- (No Code) = Confirmed Identification.
- B = Detected substantially above the level reported in laboratory or field blank.
- $\bullet$  R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
- N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling events.
- J = Analyte present. Reported value may not be accurate or precise.
- K = Analyte present. Reported value may be biased high. Actual value is expected lower.
- $\bullet$  L = Analyte present. Reported value may be biased low. Actual value is expected higher.
- UL = Not detected, quantitation limit is probably higher.
- Q = No analytical result.
- NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.
- U = The analyte was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- R = The data are unusable. Analyte may or may not be present in the sample.
- UJ = The analyte was analyzed for, but not detected. The associated detection limit is an estimate and may be inaccurate or imprecise.
- X = Surrogate recovery outside control limits.
- H = Sample extracted or analyzed outside the method specific holding time

#### II. VALIDATION REPORT

This report discusses the results of data validation of analytical data provided by Eurofins-Lancaster Laboratories Environmental for samples collected at the Caribbean Airport Facility (CAF) in Carolina, Puerto Rico on November 10 and 11, 2015 reported under SDG numbers: 1608570 and 1608983. Copies of the laboratory results are included in the Appendix A. The methods employed are shown in Table 1. Table 2 summarizes the samples collected, sampling date, and analysis performed.

Table 1. Analytical Methods

| ANALYSIS PERFORMED                                 | ANALYTICAL METHOD                                  |
|--|--|
| AQUEOUS  |  |
| TPH- GASOLINE (C6 – C10)<br>TPH-DIESEL (C10 – C28) | SW846-5030B/SW846-8015B<br>SW846-3510C/SW846-8015B |

Table 2. Samples Analyzed, Sampling Date, and Analysis Performed

| SAMPLE<br>NUMBER | SAMPLE DESCRIPTION                 | SAMPLING<br>DATE | ANALYSIS                             |
|------------------|------------------------------------|------------------|--------------------------------------|
| 8129675          | EQUIPMENT BLANK COMPOSITE<br>WATER | 11-10-15         | TPH-GRO; TPH DRO                     |
| 8129676          | MW11D-W01                          | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129677          | MW11D-W01MS                        | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129678          | MW11D-W01MSD                       | 11-10-15         | TPH-GRO; TPH DRO                     |
| 8129679          | MW11S-W01                          | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129680          | MW10S-W01                          | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129681          | MW10S-W01D                         | 11-10-15         | TPH-GRO; TPH DRO                     |
| 8129682          | MW10D-W01                          | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129683          | MW6D-W01                           | 11-10-15         |                                      |
| 8129684          | MW6S-W01                           | 11-10-15         | TPH-GRO; TPH-DRO<br>TPH-GRO          |
| 8129685          | TRIP BLANK WATER                   | 10-26-15         |                                      |
| 8129686          | FIELD BLANK COMPOSITE<br>WATER     | 11-10-15         | TPH-GRO<br>TPH-GRO; TPH-DRO          |
| 8129687          | MW3D-W01                           | 11-10-15         | TPH-GRO; TPH DRO                     |
| 8129688          | MW3S-W01                           | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129689          | MW9D-W01                           | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129690          | MW9S-W01                           | 11-10-15         | TPH-GRO; TPH DRO                     |
| 8129691          | MW7D-W01                           | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129692          | MW7S-W01                           | 11-10-15         |                                      |
| 8129693          | MW7S-W01D                          | 11-10-15         | TPH-GRO; TPH-DRO                     |
| 8129694          | MW5D-W01                           | 11-10-15         | TPH-GRO; TPH DRO                     |
| 8129695          | MW5S-W01                           | 11-10-15         | TPH-GRO; TPH DRO                     |
| 8132042          | EQUIPMENT BLANK COMPOSITE<br>WATER | 11-10-13         | TPH-GRO; TPH-DRO<br>TPH-GRO; TPH-DRO |
| 8132043          | MW4D-W01                           | 11-11-15         | TPH-GRO; TPH DRO                     |
| 8132044          | MW4D-W01 MS                        | 11-11-15         | TPH-GRO, TPH DRO                     |
| 8132045          | MW4D-W01 MSD                       | 11-11-15         | TPH-GRO; TPH DRO                     |

Table 2. Samples Analyzed, Sampling Date, and Analysis Performed

| SAMPLE<br>NUMBER   | SAMPLE DESCRIPTION  | SAMPLING<br>DATE   | ANALYSIS  |
|--|---|--|---|
| 8132046<br>8132047<br>8132048                                  | MW4S-W01<br>TRIP BLANK<br>FIELD BLANK COMPOSITE             | 11-11-15<br>10-26-15<br>11-11-15                         | TPH-GRO; TPH DRO<br>TPH-GRO<br>TPH-GRO; TPH-DRO   |
| 8132049<br>8132050<br>8132051<br>8132052<br>8132053<br>8132054 | WATER MW2D-W01 MW2S-W01 MW1D-W01 MW1S-W01 MW8D-W01 MW8S-W01 | 11-11-15<br>11-11-15<br>11-11-15<br>11-11-15<br>11-11-15 | TPH-GRO; TPH-DRO TPH-GRO; TPH-DRO TPH-GRO; TPH-DRO TPH-GRO; TPH-DRO TPH-GRO; TPH-DRO TPH-GRO; TPH-DRO |

The samples results were evaluated using general guidelines for data validation approved by local (PR Environmental Quality Board (EQB)) and national (Environmental Protection Agency (EPA)). General qualifiers were employed. There are no analytical and quality issues observed in the data package.

Note: Laboratory results are assessed based on accuracy and precision. Accuracy is the difference between experimental value and true value. In environmental samples, true values are not known and thus accuracy is evaluated indirectly. Accuracy evaluation is performed by evaluating surrogate recoveries, analysis of matrix spike/matrix spike duplicates, and laboratory control samples. Accuracy was assessed using laboratory control samples (LCS); matrix spike and matrix spike duplicate recovery results. Precision was assessed by evaluating results of laboratory and field duplicates.

#### Certification

The samples described in Table 2 were analyzed following standard procedures accepted by regulatory agencies. The quality control requirements met the methods criteria except in the occasions described in this document. The overall quality of the data is acceptable. Some of the results were qualified (J) by the laboratory none of the results were rejected (R). The results are valid and can be used for decision taking purposes.

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Méndez

## APPENIDIX A

## Reports of Analysis

Caribbean Airport
Facility



2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: Equipment Blank Composite Water

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129675

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 08:35 by DP

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

CAF-E

| CAT<br>No. Anal           | ysis Name                      | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|---------------------------|--------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Volatil<br>01635 TPH-0 | les SW-846<br>GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/1<br>20                 | <b>ug/l</b><br>50        | 1                  |
| GC Petrole                | 211 020                        | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| -                         | DRO water C10-C28              | n.a.          | 330          | 30                         | 94                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |  |
|------------|--------|----------|--------|--|
|            |        |          |        |  |

|   | CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis                   |       | Analyst                          | Dilution |
|---|------------|---------------------------|--------------|--------|------------|----------------------------|-------|----------------------------------|----------|
|   | 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | Date and Tir<br>11/15/2015 |       | Marie D                          | Factor   |
|   | 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015                 | 11:16 | Beamenderfer<br>Marie D          | 1        |
|   | 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/18/2015                 | 22:50 | Beamenderfer<br>Thomas C         | 1        |
| 3 | 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015                 | 19:00 | Wildermuth<br>Samantha L Bronder | 1        |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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Sample Description: MW11D-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129676 LL Group # 1608570

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 08:54 by DP

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Submitted: 11/11/2015 09:40 Reported: 11/24/2015 17:55

CA11D

| CAT    | Analysis Name                       | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|--------|-------------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vol | Latiles SW-846 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/l<br>20                 | <b>ug/1</b><br>50        | 1                  |
|        | croleum SW-846                      | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269  | TPH-DRO water Clo-C28               | n.a.          | 110          | 30                         | 95                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | me    | Analyst                           | Dilution<br>Factor |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|-----------------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  |                         | 09:34 | Marie D                           | 1                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 09:34 | Beamenderfer Marie D Beamenderfer | 1                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/18/2015              | 23:11 | Thomas C                          | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015              | 19:00 | Wildermuth<br>Samantha L Bronder  | T                  |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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Sample Description: MW11D-W01MS Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129677

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 08:56 by DP

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Submitted: 11/11/2015 09:40 Reported: 11/24/2015 17:55

#### CA11D

| CAT<br>No. Analysis Name                          | CAS Number    | Result        | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|---|---------------|---------------|----------------------------|--------------------------|--------------------|
| GC Volatiles SW-846<br>01635 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>1,200 | <b>ug/l</b><br>20          | <b>ug/1</b><br>50        | 1                  |
| GC Petroleum SW-846<br>Hydrocarbons               | 8015B         | ug/l          | ug/l                       | ug/l                     |                    |
| 08269 TPH-DRO water C10-C28                       | n.a.          | 1,200         | 30                         | 95                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis   |       | Analyst                          | Dilution    |
|------------|---------------------------|--------------|--------|------------|------------|-------|----------------------------------|-------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  |            | 09:59 | Marie D<br>Beamenderfer          | Factor<br>1 |
| 0114       | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015 | 09:59 | Marie D                          | 1           |
| 0826       | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/18/2015 | 23:33 | Beamenderfer<br>Thomas C         | 1           |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015 | 19:00 | Wildermuth<br>Samantha L Bronder | 1           |





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Sample Description: MW11D-W01MSD Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129678

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 08:58 by DP

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

#### CA11D

| CAT<br>No.  | Analysis Name                     | CAS Number        | Result        | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|-------------|-----------------------------------|-------------------|---------------|----------------------------|--------------------------|--------------------|
| GC Vol      | Latiles SW-8 TPH-GRO water C6-C10 | 146 8015B<br>n.a. | ug/l<br>1,300 | ug/1<br>20                 | <b>ug/1</b><br>50        | 1                  |
| 100000 0000 | troleum SW-8                      | 446 8015B         | ug/l          | ug/l                       | ug/l                     |                    |
| 08269       | TPH-DRO water C10-C28             | n.a.              | 1,300         | 30                         | 94                       | 1                  |

#### General Sample Comments

| Laboratory Sample Analysis Record |                           |              |        |            |                         |       |                                  |          |
|-----------------------------------|---------------------------|--------------|--------|------------|-------------------------|-------|----------------------------------|----------|
| CAT<br>No.                        | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | me    | Analyst                          | Dilution |
| 01635                             | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015              | 10:25 | Marie D                          | Factor   |
| 01146                             | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 10:25 | Beamenderfer<br>Marie D          | 1        |
| 08269                             | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/18/2015              | 23:54 | Beamenderfer<br>Thomas C         | 1        |
| 07003                             | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015              | 19:00 | Wildermuth<br>Samantha L Bronder | 1        |



<sup>\*=</sup>This limit was used in the evaluation of the final result

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### Analysis Report

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Sample Description: MW11S-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129679

LL Group # 1608570

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 09:05 by DP

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

#### CA11S

| CAT<br>No.      | Analysis Name                       | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|-----------------|-------------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vol<br>01635 | latiles SW-846 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/1<br>20                 | <b>ug/1</b><br>50        | 1                  |
|                 | troleum SW-846                      | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269           | TPH-DRO water C10-C28               | n.a.          | 610          | 30                         | 95                       | 1                  |

### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | ma.   | Analyst                          | Dilution |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|----------------------------------|----------|
|            | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  |                         | 12:32 | Marie D                          | Factor   |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 12:32 | Beamenderfer<br>Marie D          | 1        |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015              | 03:50 | Beamenderfer<br>Thomas C         | 1        |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015              | 19:00 | Wildermuth<br>Samantha L Bronder | 1        |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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Sample Description: MW10S-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129680 LL Group # 1608570

Account

# 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 09:34 by DP

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Submitted: 11/11/2015 09:40 Reported: 11/24/2015 17:55

#### CA10S

| CAT<br>No. | Analysis Name                       | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|-------------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vo:     | Latiles SW-846 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/l<br>20                 | ug/l<br>50               | 1                  |
|            | croleum SW-846                      | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28               | n.a.          | N.D.         | 30                         | 95                       | 1                  |

### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | mo.   | Analyst                          | Dilution    |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|----------------------------------|-------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015              |       | Marie D                          | Factor<br>1 |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 12:58 | Beamenderfer<br>Marie D          | 1           |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015              | 00:16 | Beamenderfer<br>Thomas C         | 1           |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015              | 19:00 | Wildermuth<br>Samantha L Bronder | 1           |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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by DP

Sample Description: MW10S-W01D Grab Groundwater

LL Sample # WW 8129681

CAF GW Monitoring Well Construction Project (Bimon

LL Group # 1608570

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 09:36

Caribbean Airport Facilities

Suite 3

Submitted: 11/11/2015 09:40

150 Sector Central

Cardina PR 00979

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Reported: 11/24/2015 17:55

C10SD

| CAT<br>No. | Analysis Name                          | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vo.     | latiles SW-846<br>TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/l<br>20                 | ug/l<br>50               | 1                  |
|            | troleum SW-846                         | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28                  | n.a.          | N.D.         | 31                         | 95                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis                  |       | Analyst                          | Dilution |
|------------|---------------------------|--------------|--------|------------|---------------------------|-------|----------------------------------|----------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | Date and Ti<br>11/15/2015 |       | Marie D                          | Factor   |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  |                           |       | Beamenderfer                     | 1        |
|            | •                         | D# 010 3030E | 1      | 1331/D94A  | 11/15/2015                | 13:23 | Marie D<br>Beamenderfer          | 1        |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015                | 00:37 | Thomas C                         | 1        |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015                | 19:00 | Wildermuth<br>Samantha L Bronder | 1        |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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Sample Description: MW10D-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129682 LL Group # 1608570

Account

20520

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 09:52 by DP

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

#### CA10D

| CAT<br>No. | Analysis Name           |                         | CAS Number    | Result       |   | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|-------------------------|-------------------------|---------------|--------------|---|----------------------------|--------------------------|--------------------|
|            | atiles<br>TPH-GRO water | <b>SW-846</b><br>C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. |   | <b>ug/l</b><br>20          | <b>ug/1</b><br>50        | 1                  |
| GC Pet     |                         | SW-846                  | 8015B         | ug/l         |   | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water           | C10-C28                 | n.a.          | 77           | J | 30                         | 95                       | 1                  |

### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis    |       | Analyst            | Dilution |
|------------|---------------------------|--------------|--------|------------|-------------|-------|--------------------|----------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B |        | 4554555    | Date and Ti |       |                    | Factor   |
|            | Sits watch to the         | 34-846 80138 | T      | 15317B94A  | 11/15/2015  | 13:49 | Marie D            | 1        |
| 01146      | GC VOA Water Prep         |              |        |            |             |       | Beamenderfer       |          |
| 01140      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015  | 13:49 | Marie D            | 1        |
| 00000      |                           |              |        |            |             |       | Beamenderfer       |          |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015  | 00:59 | Thomas C           | 1        |
|            |                           |              |        |            | /25/2025    | 00.55 | Wildermuth         | 1        |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015  | 10.00 |                    |          |
|            |                           |              | _      | 133100033A | 11/10/5012  | 19:00 | Samantha L Bronder | 1        |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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by DP

Sample Description: MW6D-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129683 LL Group # 1608570

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 10:21

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

CA6D-

| CAT<br>No. Analysis Name                          | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|---|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Volatiles SW-846<br>01635 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/1<br>N.D. | ug/1<br>20                 | <b>ug/1</b><br>50        | 1                  |
| GC Petroleum SW-846<br>Hydrocarbons               | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269 TPH-DRO water C10-C28                       | n.a.          | 110          | 30                         | 95                       | 1                  |

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | me    | Analyst                          | Dilution    |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|----------------------------------|-------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015              |       | Marie D                          | Factor<br>1 |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 14:14 | Beamenderfer<br>Marie D          | 1           |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015              | 01:21 | Beamenderfer<br>Thomas C         | 1           |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015              | 19:00 | Wildermuth<br>Samantha L Bronder | 1           |



\*=This limit was used in the evaluation of the final result

Page 11 of 32

|            |                      | Laborat      | ory Sa | mple Analysis | Record                 |     |                         |                    |
|------------|----------------------|--------------|--------|---------------|------------------------|-----|-------------------------|--------------------|
| CAT<br>No. | Analysis Name        | Method       | Trial# | Batch#        | Analysis Date and Time |     | Analyst                 | Dilution<br>Factor |
| 01635      | TPH-GRO water C6-C10 | SW-846 8015B | 1      | 15317B94A     | 11/15/2015 14          | :40 | Marie D<br>Beamenderfer | 1                  |
| 01146      | GC VOA Water Prep    | SW-846 5030B | 1      | 15317B94A     | 11/15/2015 14:         | :40 | Marie D<br>Beamenderfer | 1                  |





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Sample Description: Field Blank Composite Water

LL Sample # WW 8129686

CAF GW Monitoring Well Construction Project (Bimon

LL Group # 1608570

Account

# 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 08:25

by DP

Caribbean Airport Facilities

through 11/10/2015 14:44

Suite 3

Submitted: 11/11/2015 09:40 Reported: 11/24/2015 17:55 150 Sector Central

Cardina PR 00979

CAF-F

| CAT<br>No. Analysis Name                    | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|---|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Volatiles SW-846                         | 8015B<br>n.a. | ug/l<br>N.D. | <b>ug/l</b><br>20          | <b>ug/1</b><br>50        | 1                  |
|   | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| Hydrocarbons<br>08269 TPH-DRO water C10-C28 | n.a.          | N.D.         | 30                         | 94                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|            |        |          |        |

| CAT   | Analysis Name             | Method       | Trial# | Batch#     | Analysis Date and Time | Analyst                 | Dilution<br>Factor |
|-------|---------------------------|--------------|--------|------------|------------------------|-------------------------|--------------------|
| 01635 | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015 11:41       | Marie D<br>Beamenderfer | 1                  |
| 01146 | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015 11:43       | Marie D<br>Beamenderfer | 1                  |
| 08269 | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015 01:42       | Thomas C<br>Wildermuth  | 1                  |
| 07003 | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015 19:00       | Samantha L Bronder      | 1                  |



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### Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW6S-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129684 LL Group # 1608570

Account

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 10:29

by DP

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Submitted: 11/11/2015 09:40 Reported: 11/24/2015 17:55

CA6S-

CAT

No.

Analysis Name

CAS Number

Result

Method Detection Limit\*

Limit of Quantitation

Dilution Factor

GC Volatiles

SW-846 8015B

ug/l

ug/l

ug/l

01635 TPH-GRO water C6-C10

N.D.

50

1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name        | Method       | Trial# | Batch#    | Analysis                   |       | Analyst                           | Dilution    |
|------------|----------------------|--------------|--------|-----------|----------------------------|-------|-----------------------------------|-------------|
| 01635      | TPH-GRO water C6-C10 | SW-846 8015B | 1      | 15317B94A | Date and Ti:<br>11/15/2015 | 14:40 | Marie D                           | Factor<br>1 |
| 01146      | GC VOA Water Prep    | SW-846 5030B | 1      | 15317B94A | 11/15/2015                 |       | Beamenderfer Marie D Beamenderfer | 1           |



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### Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: Trip Blank Water

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129685 LL Group # 1608570

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 10/26/2015

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

CAF-T

CAT Method Limit of Analysis Name Dilution CAS Number No. Detection Limit\* Quantitation Result Factor GC Volatiles SW-846 8015B ug/l ug/1 ug/l 01635 TPH-GRO water C6-C10 N.D. 20 50 1

### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name                             | Method                       | Trial# | Batch# | Analysis  | Analyst | Dilution         |
|------------|---|------------------------------|--------|--------|---|---------|------------------|
|            | TPH-GRO water C6-C10<br>GC VOA Water Prep | SW-846 8015B<br>SW-846 5030B | 1      |        | Date and Time<br>11/12/2015 14:<br>11/12/2015 14: |         | Factor<br>1<br>1 |



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### Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

by DP

Sample Description: MW3D-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129687

LL Group # 1608570

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 11:00

Submitted: 11/11/2015 09:40

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Reported: 11/24/2015 17:55

CA3D-

| CAT<br>No. | Analysis Name            |                         | CAS Number    | Result       |   | Method Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--------------------------|-------------------------|---------------|--------------|---|-------------------------|--------------------------|--------------------|
| GC Vo.     | Latiles<br>TPH-GRO water | <b>SW-846</b><br>C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. |   | ug/l<br>20              | <b>ug/l</b><br>50        | 1                  |
|            | roleum<br>carbons        | SW-846                  | 8015B         | ug/l         |   | ug/l                    | ug/l                     |                    |
| 08269      | TPH-DRO water            | C10-C28                 | n.a.          | 92           | J | 30                      | 95                       | 1                  |

### General Sample Comments

| Laboratory Sample Analysis Record |                           |              |        |            |                           |             |                                  |          |  |
|-----------------------------------|---------------------------|--------------|--------|------------|---------------------------|-------------|----------------------------------|----------|--|
| CAT<br>No.                        | Analysis Name             | Method       | Trial# | Batch#     | Analysis                  |             | Analyst                          | Dilution |  |
| 01635                             | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | Date and Ti<br>11/15/2015 | me<br>15:31 | Marie D                          | Factor   |  |
| 01146                             | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015                | 15:31       | Beamenderfer<br>Marie D          | 1        |  |
| 08269                             | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015                | 02:03       | Beamenderfer<br>Thomas C         | 1        |  |
| 07003                             | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015                | 19:00       | Wildermuth<br>Samantha L Bronder | 1        |  |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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by DP

Sample Description: MW3S-W01 Grab Groundwater

LL Sample # WW 8129688

CAF GW Monitoring Well Construction Project (Bimon

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 11:06

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

CA3S-

| CAT<br>No. | Analysis Nam      | e                      | CAS Number    | Result       |   | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|-------------------|------------------------|---------------|--------------|---|----------------------------|--------------------------|--------------------|
| GC Vol     | TPH-GRO wate      | <b>SW-846</b> r C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. |   | ug/l<br>20                 | ug/l<br>50               | 1                  |
|            | roleum<br>carbons | SW-846                 | 8015B         | ug/l         |   | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO wate      | r C10-C28              | n.a.          | 68           | J | 30                         | 95                       | 1                  |

### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | mo.   | Analyst                          | Dilution    |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|----------------------------------|-------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015              |       | Marie D                          | Factor<br>1 |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 15:56 | Beamenderfer<br>Marie D          | 1           |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015              | 02:25 | Beamenderfer<br>Thomas C         | 1           |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015              | 19:00 | Wildermuth<br>Samantha L Bronder | 1           |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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by DP

Sample Description: MW9D-W01 Grab Groundwater

LL Sample # WW 8129689

CAF GW Monitoring Well Construction Project (Bimon

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 14:34

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

CA9D-

| CAT<br>No. Analysis Name            | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|-------------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Volatiles SW-846                 | 8015B<br>n.a. | ug/l<br>N.D. | <b>ug/1</b><br>20          | <b>ug/1</b><br>50        | 1                  |
| GC Petroleum SW-846<br>Hydrocarbons | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269 TPH-DRO water C10-C28         | n.a.          | 470          | 30                         | 95                       | 1                  |

#### General Sample Comments

|            |                           | Laborat      | ory Sa | ample Analysia | s Record                |             |                               |             |
|------------|---------------------------|--------------|--------|----------------|-------------------------|-------------|-------------------------------|-------------|
| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#         | Analysis<br>Date and Ti |             | Analyst                       | Dilution    |
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A      |                         | me<br>16:22 | Marie D                       | Factor<br>1 |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A      | 11/15/2015              | 16:22       | Beamenderfer<br>Marie D       | 1           |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A     | 11/19/2015              | 02:46       | Beamenderfer<br>Thomas C      | 1           |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A     | 11/16/2015              | 19:00       | Wildermuth Samantha L Bronder | 1           |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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Sample Description: MW9S-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129690

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 14:42

Submitted: 11/11/2015 09:40

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Reported: 11/24/2015 17:55

CA9S-

| CAT<br>No. | Analysis Name            |                         | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--------------------------|-------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vo:     | Latiles<br>TPH-GRO water | <b>SW-846</b><br>C6-C10 | 8015B<br>n.a. | ug/1<br>N.D. | ug/1<br>20                 | ug/1<br>50               | 1                  |
|            | carbons                  | SW-846                  | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water            |                         | n.a.          | 620          | 30                         | 94                       | 1                  |

### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | <b></b> | Analyst                          | Dilution |
|------------|---------------------------|--------------|--------|------------|-------------------------|---------|----------------------------------|----------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015              | 16:48   | Marie D                          | Factor   |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 16:48   | Beamenderfer<br>Marie D          | 1        |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015              | 04:12   | Beamenderfer<br>Thomas C         | 1        |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153180035A | 11/16/2015              | 19:00   | Wildermuth<br>Samantha L Bronder | 1        |





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Sample Description: MW7D-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129691 LL Group # 1608570

Account

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 13:28

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

CA7D-

| CAT<br>No. | Analysis Name                       | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|-------------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vol     | Latiles SW-846 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/l<br>20                 | <b>ug/l</b><br>50        | 1                  |
|            | croleum SW-846                      | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28               | n.a.          | 720          | 30                         | 95                       | 1                  |

### General Sample Comments

|            | Laboratory Sample Analysis Record |              |        |            |                           |       |                                  |          |  |
|------------|-----------------------------------|--------------|--------|------------|---------------------------|-------|----------------------------------|----------|--|
| CAT<br>No. | Analysis Name                     | Method       | Trial# | Batch#     | Analysis                  |       | Analyst                          | Dilution |  |
| 01635      | TPH-GRO water C6-C10              | SW-846 8015B | 1      | 15317B94A  | Date and Ti<br>11/15/2015 |       | Marie D                          | Factor   |  |
| 01146      | GC VOA Water Prep                 | SW-846 5030B | 1      | 15317B94A  | 11/15/2015                | 17:13 | Beamenderfer<br>Marie D          | 1        |  |
| 08269      | TPH-DRO water Cl0-C28             | SW-846 8015B | 1      | 153180035A | 11/19/2015                | 03:29 | Beamenderfer<br>Thomas C         | ī        |  |
| 07003      | Extraction - DRO (Waters)         | SW-846 3510C | 1      | 153180035A | 11/16/2015                | 19:00 | Wildermuth<br>Samantha L Bronder | 1        |  |





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Sample Description: MW7S-W01 Grab Groundwater

LL Sample # WW 8129692

CAF GW Monitoring Well Construction Project (Bimon

LL Group # 1608570

Account

# 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 13:33

Submitted: 11/11/2015 09:40

Reported: 11/24/2015 17:55

by DP

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

#### CA7S-

| CAT<br>No. | Analysis Name                       | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|-------------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vol     | Latiles SW-846 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/l<br>20                 | <b>ug/l</b><br>50        | 1                  |
|            | roleum SW-846                       | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28               | n.a.          | 190          | 30                         | 94                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis     |       | Analyst            | Dilution |
|------------|---------------------------|--------------|--------|------------|--------------|-------|--------------------|----------|
| 01635      | TPH-GRO water C6-C10      | GT 045 045 F | 3      |            | Date and Tir |       |                    | Factor   |
| 01022      | IFH-GRO WALEL C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015   | 17:39 | Marie D            | 1        |
|            |                           |              |        |            |              |       | Beamenderfer       |          |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015   | 17:39 | Marie D            | 1        |
|            | -                         |              | _      | 1331,1311  | 11/13/2013   | 17:39 |                    | T        |
| 08269      | MDU DDO die des           |              |        |            |              |       | Beamenderfer       |          |
| 00203      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153180035A | 11/19/2015   | 03:08 | Thomas C           | 1        |
|            |                           |              |        |            |              |       | Wildermuth         |          |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 2      | 153180035A | 11           |       |                    |          |
|            | - Dito (Macers)           | 2M-040 2210C | T      | 153180035A | 11/16/2015   | 19:00 | Samantha L Bronder | 1        |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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by DP

Sample Description: MW7S-W01D Grab Groundwater

LL Sample # WW 8129693

CAF GW Monitoring Well Construction Project (Bimon

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 13:35

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Submitted: 11/11/2015 09:40 Reported: 11/24/2015 17:55

CA7SD

| CAT<br>No. | Analysis Name  | CAS Number        | Result                               | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--|-------------------|--------------------------------------|----------------------------|--------------------------|--------------------|
| GC Vo:     | Latiles SW-846 TPH-GRO water C6-C10  | 8015B<br>n.a.     | ug/l<br>N.D.                         | ug/l<br>20                 | <b>ug/l</b><br>50        | 1                  |
|            | troleum SW-846<br>carbons  | 8015B             | ug/l                                 | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28 Target analytes were detecte with the samples as noted on was unable to be performed w | the QC Summary. A | 160<br>nk associated<br>reextraction | 30                         | 94                       | 1                  |

### General Sample Comments

|            | Laboratory Sample Analysis Record |              |        |            |                         |       |                                    |                    |  |
|------------|-----------------------------------|--------------|--------|------------|-------------------------|-------|------------------------------------|--------------------|--|
| CAT<br>No. | Analysis Name                     | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | me    | Analyst                            | Dilution<br>Factor |  |
| 01635      | TPH-GRO water C6-C10              | SW-846 8015B | 1      | 15317B94A  | 11/15/2015              |       | Marie D                            | 1                  |  |
| 01146      | GC VOA Water Prep                 | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 18:04 | Beamenderfer<br>Marie D            | 1                  |  |
| 08269      | TPH-DRO water C10-C28             | SW-846 8015B | 1      | 153210016A | 11/18/2015              | 15:56 | Beamenderfer<br>Christine E Dolman | 1                  |  |
| 07003      | Extraction - DRO (Waters)         | SW-846 3510C | 1      | 153210016A | 11/17/2015              | 19:00 | Samantha I. Bronder                | 1                  |  |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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Sample Description: MW5D-W01 Grab Groundwater

CAF GW Monitoring Well Construction Project (Bimon

LL Sample # WW 8129694

LL Group # 1608570

# 20530 Account

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 14:00

Submitted: 11/11/2015 09:40

by DP

Caribbean Airport Facilities

Suite 3

Reported: 11/24/2015 17:55

150 Sector Central Cardina PR 00979

|            | 7:    | 31   | )      | -     |
|------------|-------|------|--------|-------|
| altered to | opnés | mani | imente | nties |

| CAT<br>No. | Analysis Name  | CAS Number        | Result                                  | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--|-------------------|---|----------------------------|--------------------------|--------------------|
| GC Vo.     | latiles SW-846<br>TPH-GRO water C6-C10   | 8015B<br>n.a.     | ug/1<br>N.D.                            | ug/1<br>20                 | <b>ug/l</b><br>50        | 1                  |
|            | troleum SW-846<br>carbons  | 8015B             | ug/l                                    | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28 Target analytes were detected with the samples as noted or was unable to be performed to | the QC Summary. A | 150<br>unk associated<br>a reextraction | 30                         | 95                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Tir | me    | Analyst                 | Dilution<br>Factor |
|------------|---------------------------|--------------|--------|------------|--------------------------|-------|-------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  |                          | 18:30 | Marie D<br>Beamenderfer | 1                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015               | 18:30 | Marie D Beamenderfer    | 1                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015               | 16:18 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015               | 19:00 | Samantha L Bronder      | 1                  |





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Sample Description: MW5S-W01 Grab Groundwater

LL Sample # WW 8129695

CAF GW Monitoring Well Construction Project (Bimon

LL Group # 1608570 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/10/2015 14:06

by DP

Caribbean Airport Facilities

Suite 3

Submitted: 11/11/2015 09:40 Reported: 11/24/2015 17:55

150 Sector Central Cardina PR 00979

CA5S-

| CAT<br>No. | Analysis Name   | CAS Number         | Result | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|---|--------------------|--------|----------------------------|--------------------------|--------------------|
| GC Vol     | Latiles SW-84   | 6 8015B            | ug/l   | ug/l                       | ug/l                     |                    |
| 01635      | TPH-GRO water C6-C10  | n.a.               | N.D.   | 20                         | 50                       | 1                  |
| GC Pe      | troleum SW-84   | 6 8015B            | ug/l   | ug/l                       | ug/l                     |                    |
| Hydro      | carbons   |                    |        |                            |                          |                    |
| 08269      | TPH-DRO water C10-C28   | n.a.               | 150    | 30                         | 95                       | 1                  |
|            | Target analytes were detect<br>with the samples as noted of<br>was unable to be performed | on the QC Summary. |        |                            |                          |                    |

#### General Sample Comments

| Laboratory Sample Analysis Record |                           |              |        |            |                         |       |                         |                    |  |  |  |  |
|-----------------------------------|---------------------------|--------------|--------|------------|-------------------------|-------|-------------------------|--------------------|--|--|--|--|
| CAT                               | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | me    | Analyst                 | Dilution<br>Factor |  |  |  |  |
| 01635                             | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317B94A  | 11/15/2015              | 18:55 | Marie D<br>Beamenderfer | 1                  |  |  |  |  |
| 01146                             | GC VOA Water Prep         | SW-846 5030B | 1      | 15317B94A  | 11/15/2015              | 18:55 | Marie D<br>Beamenderfer | 1                  |  |  |  |  |
| 08269                             | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015              | 16:40 | Christine E Dolman      | 1                  |  |  |  |  |
| 07003                             | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015              | 19:00 | Samantha L Bronder      | 1                  |  |  |  |  |



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**Lancaster Laboratories** Acct. # 20 530 Group # 1608570 Sample # 8129675 95 Environmental

| Client: Fernando L. Rodríguez PE & Associatos   |              |  | 11000                                   | # <u>6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 </u> |          | Group #_              | 100    | 1031                  | 0                     | Sa        | mple # | ) 160  | 167    | 5-9      | -  |      |  |  |
|---|--------------|--|---|---|----------|-----------------------|--------|-----------------------|-----------------------|-----------|--------|--------|--------|----------|--|------|--|--|
| The strigger, TE & Associates   | i            |  | *************                           |   |          | Matri                 | Х      | T                     |                       |           | Ana    | yses   | Seans  | etod     |  |      | P** 1 1  |  |
| Project Name/#: CAF GW Monitoring Well Construction Project (Initial Sampling)          | Site ID#     | Caribbe  | an Air                                  | ort Facilities                                  | TE       |                       | 1      | 7                     |                       |           | Alle   | yaca   | reque  | stea     |  |      | For Lab  | Use Only   |
| Project Name#: Project (Initial Sampling) Drooth Project Manager: Fernando L. Rodríguez | P.O. #:      | (L.IVI.IV  | n. Inti /                               | Airport-SJU)                                    | 1        |                       |        |                       |                       |           | Pres   | ervati | on Co  | odes     |  |      | SF#:   |  |
| Sampler: David Perez  | PWSID#       | ,  | *************************************** |   | Į Ĕ      | Ground                |        |                       | H                     | NA        |        |        |        |          |  |      | SCR#;  | ***************************************  |
| Phone #: 187 - 181 - 1810   |              | · · · · · · · · · · · · · · · · · · ·  |   |   | Sediment | Sur Sur               | Water  | S                     |                       |           |        |        |        |          |  |      |  |  |
| State where sample(s) were collected: Puerto Rico                                       | Quote #:     |  | -                                       |   | Se       |                       | J &    | iner                  |                       |           | 1      |        |        |          |  |      |  | vation Codes   |
| Puelto Rico   | 1            |  | _                                       |   |          | Potable<br>NPDES      |        | onta                  | GRO                   | 000       |        |        |        |          |  |      | H = HCI<br>N = HNO3  | T = Thiosulfate  |
|   | Colle        | ection   |   | site  |          | Pot:                  | 日      | Total # of Containers | 3                     | 10        |        |        |        |          |  |      |  | B = NaOH   |
| Sample Identificati   |              |  | هِ ا                                    | Composite                                       |          | 9                     | 1.0    | #                     | T                     | 古         |        |        |        |          |  | 1 1  | S = H <sub>2</sub> SO <sub>4</sub>   | $P = H_3PO_4$  |
| Sample Identification   | Date         | Time   | Grab                                    | Cor   | Soil     | Water                 | Other: | Tota                  | lan.                  | 200       | 1      |        |        |          |  |      | ) = Other  |  |
| Equipment Blank MWIID-WOI   | 11-10-15     | 8:35   |   | /   |          |                       | 1      | 5                     | 3                     | 2         |        |        |        | +        | +-                                       | +-   | Ke   | marks  |
| MWII D - WOI HS   | 11-10-12     | The Party of the P | V                                       |   |          | /                     |        | ã                     | 3                     | 2.        |        |        |        | $\vdash$ | +  | ++   |  |  |
| GEH 1000 G 11COM  | 11-10-15     |  | V                                       |   |          | /                     |        | 5                     | 3                     | 2         |        |        |        |          | +  |      |  | The same of the sa |
| HONS - WOLLD  | 11-10-15     |  | V                                       |   |          | /                     |        | 5                     | 3                     | 2.        |        |        |        |          | 1  |      |  |  |
| MON 3 - W81   | 11-10-15     | 9:05   | ~                                       |   |          | /                     |        | 5                     | 3                     | 2         |        |        |        | 1        |  | ++   |  |  |
|   |              |  |   |   |          |                       |        |                       |                       |           |        |        |        |          |  |      |  |  |
|   |              | ***************************************  | $\vdash$                                |   |          |                       |        |                       |                       |           |        |        |        |          |  |      | Manual Commission Comm |  |
|   |              |  | $\vdash$                                |   |          |                       |        |                       |                       |           |        |        |        |          |  |      |  |  |
|   |              |  | $\vdash$                                |   |          |                       |        |                       |                       |           |        |        |        |          | 1 4                                      |      |  |  |
| rnaround Time Requested (TAT) (please check):   | Stand        | ard 🗸  | Durch                                   |   | Relin    | quished t             | 27/1   |                       |                       |           |        |        |        |          |  |      | ***************************************  |  |
| (Rush TAT is subject to laboratory approve  | and surch    | arges.)  | Rusn                                    |   |          |                       |        | \ 1                   | $\sim 1$              | Date      | Tin    |        | eceive | d by:    |  |      | Date   | Time   |
| ite results are needed:   |              |  |   | F   | Relin    | quished b             | W.     | SP -                  | 1                     | Date Date | -      |        |        |          | Marie Ing. Company of the Company        |      |  |  |
| sh results requested by (please check): E-Mail  | V            | Phone  | п                                       |   |          | 1-1-1-1-1             | - , .  |                       | 1                     | Date      | Tin    | ie K   | ceive  | d by:    |  |      | Date   | Time   |
| mail Address: hkrodriguez@flraches.com; CC: flrache                                     | spr@gmail.   | com  | ·                                       | F   | Relinc   | uished b              | V:     |                       | -                     | Date      | Firm   |        | ceived | 1 1-     | A-10-00-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0- |      | _/_  |  |
| one: 787-751-7810   |              |  |   |   |          | • 10 (0) (000,000 000 | ,      |                       |                       |           | /"     | e Ke   | ceivec | a by:    |  |      | Date   | Time   |
| ta Package Options (please check if required)   |              |  |   | R   | elino    | uished b              | y:     |                       | +                     | Date      | Tim    | e Re   | ceiveo | l love   |  | 4    | ****   |  |
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| e III (Reduced non-CLP) CT RCP e VI (Raw Data Only) TX TRRP-13                          |              |  |   | R   | elinq    | uished b              | y:     |                       | $\dashv$              | Date      | Tim    | e Re   | ceived | by:      |  |      | Data   |  |
| 177 1131 - 10   |              |  |   |   |          |                       |        |                       | - Address of the same |           |        |        | (      | ~y.      | 1  |      | Date   | Time<br>940  |
| NYSDEC Category A of  |              |  |   | R   | elinq    | uished by             | y Con  | nmerc                 | ial Ca                | arrier:   |        | +      | Con    | 2        |  | 之    | 11-11-15   | 140  |
| D.Required? Yes No If yes, format   |              |  |   | UI  | -s_      | X Fed                 | IEx_   |                       | Othe                  | r         | -      | Tei    | nperat | ure un   | on rec                                   | eint | 0.7  | _°C  |
| Eurofins Lancaster Labor  | atories Envi | ronmental,   | LLC · 2                                 | 425 New Hol                                     | land I   | Pike, Lanc            | aster, | PA 1                  | 7601 •                | 717-656   | -2300  |        |        |          |  | -ih. |  | 7045 0044  |

| 🕸 eurofins                 |  |   |   |                             |   |   |                  |           | tdf                  |          |      |          |              |        |         |              |   |  |  |
|----------------------------|--|---|---|-----------------------------|---|---|------------------|-----------|----------------------|----------|------|----------|--------------|--------|---------|--------------|---|--|--|
|                            | caster Laboratories<br>ironmental  |   |   | Acct.                       | #_ 2053                                 | 30                                      | Group#_          | 16        | 089                  | 570      | > s  | ample#   | 81           | 296    | 15      | -95          |   |  |  |
| Client: Fernando L. I      | Rodríguez, PE & Associates   |   |   |                             |   |   | Matrix           | (         |                      | T        |      | Aı       | nalyse       | s Red  | uest    | ed           |   | For Lab  | Use Only   |
|                            | GW Monitoring Well Construction<br>ct (Bimonthly Sampling)   | Site ID #:                                      |   |                             | ort Facilities<br>irport-SJU)           |   | W C              |           |                      |          |      |          | eserv        |        |         |              |   | SF #:  |  |
| Project Manager: Ferna     | ando L. Rodríguez  | P.O.#:  |   | atti Adria varia en anacena | **************************************  | 1_                                      | 2 g              |           |                      | 14       | NIA  |          |              |        | T       | T            | T   | SCR #:_  |  |
| Sampler: David Pe          | erez   | PWSID#  | •                                       |                             |   | Sediment                                | Ground           | 6         | 5                    | Ë        |      |          |              |        | +       | -            | ++  |  |  |
| Phone #: 787-751           |  | Quote #:  |   |                             |   | ğğ                                      |                  | -t-       | iers                 |          |      |          |              |        |         |              |   |  | rvation Codes,   |
| State where sample(s) we   |  | Accorded the Harrison Company of the Assessment |   | -                           |   | 1 "                                     |                  | - printer | ıtair                |          | 80   |          |              |        |         |              |   | H = HCI  | T = Thiosulfate  |
|                            |  | Colle   | ection                                  |                             | Composite                               |   | Potable<br>NPDES | B         | of Co                | + GRO    | P    |          |              |        |         |              |   | N = HNO <sub>3</sub><br>S = H <sub>2</sub> SO <sub>4</sub> | B = NaOH P = H <sub>3</sub> PO <sub>4</sub>  |
| Sample Identification      |  | Date  | Time                                    | Grab                        | mo                                      | Soil                                    | Water            | Other:    | Total#               | C        | Hd   | -        |              |        |         |              |   | O = Other ·  |  |
| HWIDS                      | 1-6001   | 11-10-15  | 9:34                                    | 7                           | 0                                       | S                                       | 5                | 0         | 5                    | 3        | 2.   |          | $\dashv$     | -      | +       | -            |   | Re   | marks  |
| MW to 3                    | G 10W - C  | 11-10-15  | -                                       | V                           | ###                                     |   | V                |           | £3                   | 3        | 2    |          | +            |        | +       | -            |   |  |  |
| HW to I                    |  | 11-10-15  | 9152                                    |                             | *************************************** |   | V                |           | 5                    | 3        | 2    | $\dashv$ | $\dashv$     | _      | -       |              |   |  |  |
| MUD6 D                     | 1000 = C   | 11-10-15  | 10:21                                   | V                           |   |   | 1                |           | 5                    | 3        | 2    |          |              | 1      | _       |              |   |  |  |
| HW6 8                      | 5- WOI   | 11-10-15  | 10:29                                   | /                           |   |   | 1                |           | 5                    | 3        | 2    |          |              | 1      |         |              |   |  |  |
| Trip BI                    | lank   | 10-26-15  |   |                             |   |   |                  | <b>V</b>  | 2                    |          |      | $\top$   |              | $\top$ |         |              |   | ****   | TO THE RESIDENCE OF THE PARTY O |
|                            |  |   | *************************************** |                             |   |   |                  |           |                      |          |      |          |              |        |         |              |   |  |  |
|                            |  |   |   |                             |   |   |                  |           |                      |          |      |          |              |        |         |              |   |  |  |
|                            |  |   |   |                             |   |   |                  |           |                      |          |      |          |              |        |         |              |   | ***************************************                    |  |
|                            |  |   |   |                             |   |   |                  |           |                      |          |      |          |              |        |         |              |   |  |  |
|                            | uested (TAT) (please check):<br>TAT is subject to laboratory approve   |   |   | Rush                        |   | Relind                                  | quished I        | ру:<br>   | Y                    |          | Date | . 1      | Time         |        | eived I | by:          |   | Date   | Time   |
| ate results are needed:    |  |   |   | ~                           |   | Relind                                  | quished l        |           |                      | $\dashv$ | Date |          | Time         |        | ived t  |              |   | Date   | Time   |
| ush results requested by ( | (please check): E-Mail   | V   | Phone                                   | e 🗍                         |   |   |                  |           |                      |          |      |          |              |        |         | ,            |   |  |  |
| -mail Address: hkrodrìg    | guez@flraches.com; CC: flrache   | spr@gmail.                                      | .com                                    |                             | 1                                       | Relino                                  | uished b         | ру:       | HARAM A STREET, SANS |          | Date |          | Time         | Rece   | ived b  | y:           |   | Date   | Time   |
| hone: 787-751-7810         |  |   |   |                             |   |   |                  |           |                      |          |      |          |              |        |         | /            |   |  |  |
| ata Package Options (      |  |   |   |                             | Į.                                      | Relino                                  | uished b         | y:        |                      |          | Date |          | Time         | Rece   | ived b  | Ŋ:           | **************  | Date   | Time   |
| /pe I (Validation/non-CLP) | Total Control of the  |   |   |                             |   |   |                  |           |                      |          |      |          |              |        |         |              |   |  |  |
| rpe III (Reduced non-CLP)  | browged  |   |   |                             | F                                       | Reling                                  | uished to        | ý:        |                      |          | Date |          | Гime         | Rece   | ived b  | y:           | With the second | Date   | Time   |
| rpe VI (Raw Data Only)     | TX TRRP-13   |   |   |                             |   |   |                  |           |                      |          |      |          |              |        | Lo      | 7            | 5   | 11.11.15   | 940  |
|                            | The state of the s | r 🗍 B   |   |                             | -                                       | *************************************** | uished b         |           | ************         |          |      |          |              |        |         | ************ |   |  |  |
| DD Required? Yes           | No If yes, forma   | t:  |   |                             | U                                       | IPS_                                    | X Fed            | dEx_      |                      | _ Oth    | ner  |          | - The second | Temp   | eratui  | re upo       | n receip  | ot 2-7   | _°C  |

| 🗱 eurofins   |                 |   |   |                              |   |                  |  |   |        |                              |               | er .     |   |         |              |              |  |   |
|--|-----------------|---|---|------------------------------|---|------------------|--|---|--------|------------------------------|---------------|----------|---|---------|--------------|--------------|--|---|
| Lancaster Laboratories Environmental   |                 |   | Acct.                                   | 1050                         | 30_                                     | Group#           | 66   | 857                                     | 10     | Sa                           | ample#        | 812      | 96                                      | 75      | -95          | 2            |  |   |
| Client: Fernando L. Rodríguez, PE & Associa                                      | tes             |   |   |                              |   | Matrix           | (  |   | T      |                              | Ar            | alyse    | s Rec                                   | TUES    | hed          |              | For Lab                                    | Use Only  |
| Project Name/#: CAF GW Monitoring Well Construction Project (Bimonthly Sampling) | Site ID#:       |   |   | ort Facilities<br>rport-SJU) |   | I C              |  |   |        |                              |               | eserv    |   |         |              |              |  | Ose Offig   |
| Project Manager: Fernando L. Rodríguez   | P.O. #:         | annante et en eil eur placet une tot general en |   |                              | 1.                                      | g 8              |  |   | H      | NIA                          | 1             | 1        |   | T       |              | T            | SCR#:                                      |   |
| Sampler: David Perez   | PWSID #         | •   |   |                              | Sediment                                | Ground           | 20   |   |        | 1                            | -             |          | +                                       |         |              | +-+          |  |   |
| Phone #: 181 - 151 - 1810  | Quote #:        |   | -                                       |                              | Sedin                                   |                  |  | ers                                     |        |                              |               |          |   |         |              |              |  | rvation Codes   |
| State where sample(s) were collected: Puerto Ricc                                |                 |   |   |                              | 1 "                                     | 1                | 3  | ıtain                                   | 0      | 80                           |               |          |   |         |              |              | H = HCI                                    | T = Thiosulfate   |
|  | Colle           | ection  |   | Composite                    |   | Potable<br>NPDES | Ä  | # of Containers                         | H GRO  | P                            |               |          |   |         |              |              | $N = HNO_3$ $S = H_2SO_4$                  | B = NaOH<br>P = H <sub>3</sub> PO <sub>4</sub>  |
| Sample Identification  | Date            | Time  | Grab                                    | mo;                          | Soil                                    | Water            | Other:   | Total#                                  | TOH    | 1                            |               |          |   |         |              |              | O = Other                                  | _   |
| Field Blank  | 11-10-15        | 8:15  |   | 3/                           | S                                       | _ 5              | 0  | 5                                       | 3      | 2                            |               | -        | -                                       | +       | -            | $\vdash$     | Re   | marks   |
| IOW- CEWM  | 11-10-15        | 11:00   | V                                       |                              |   |                  | · V  | 5                                       | 3      | 2                            | _             |          | +                                       | +       | -            | $\vdash$     | ***************************************    |   |
| HW35-1201  | 11-10-15        | 11:06   | V                                       |                              |   | 1                |  | 5                                       | 3      | Core Core                    | $\dashv$      | +        | -                                       | -       | <del> </del> |              |  |   |
| 100 - D - WOI  | 11-10-15        | 1434  |   |                              |   | 1                |  | 5                                       | 3      | direct                       | $\dashv$      | +        | _                                       | -       |              |              |  |   |
| HW95-W01   | 11-10-15        | 1442  | 1                                       |                              |   | 1                |  | 5                                       | 3      | 2                            | _             | $\dashv$ | _                                       | 1       |              |              |  |   |
|  |                 |   |   |                              |   |                  |  |   |        |                              | $\neg \vdash$ | 1        | †                                       | T       |              |              |  | ****  |
|  |                 |   |   |                              |   | W. C             |  |   |        |                              |               |          | 1                                       | T       |              |              |  |   |
|  |                 |   |   |                              |   |                  |  |   |        |                              |               |          |   |         |              |              |  |   |
|  |                 |   |   |                              |   |                  |  |   |        |                              |               |          |   |         |              |              | and the second second second second second | National Association of the Control |
|  |                 |   |   |                              | Λ                                       |                  |  |   |        |                              |               |          |   |         |              |              | ******                                     |   |
| urnaround Time Requested (TAT) (please check):                                   |                 |   | Rush                                    |                              | Relino                                  | quished I        | oy:  | ٠,                                      |        | Date                         | 1             | Time     | a a                                     | eived   | by:          |              | Date                                       | Time  |
| (Rush TAT is subject to laboratory app   | roval and surch | arges.)   |   | -                            | 1                                       | 10               | EZ [   | 7_                                      |        | Q No                         |               | 5:48     |   |         |              |              |  |   |
| ate results are needed:  |                 |   | *************************************** |                              | Relind                                  | quished t        | oy: '  |   | ľ      | Date                         |               | Time     | Rece                                    | eived I | oy:          |              | Date                                       | Time  |
| tush results requested by (please check): E-Mail                                 | V               |   | e 🗌                                     | [                            | -                                       |                  |  | *************************************** |        | THE RESIDENCE OF THE PERSONS |               |          |   |         |              |              |  |   |
| -mail Address: hkrodriguez@flraches.com; CC: flra<br>hone: 787-751-7810          | chespr@gmail    | .com  |   |                              | Relind                                  | uished b         | y:   |   |        | Date                         | 7             | Time     | Rece                                    | ived l  | oy:          | /            | Date                                       | Time  |
| ata Package Options (please check if required)                                   |                 |   |   |                              | Relino                                  | uished b         | y:   |   | +      | Date                         | -             | Time     | Rece                                    | ived b  | ov: /        |              | Date                                       | Time  |
| ype I (Validation/non-CLP)   |                 |   |   |                              |   |                  | A STATE OF THE PARTY OF THE PAR |   |        | -                            |               |          |   |         | /            |              | 3000                                       | 7,1116  |
| /pe III (Reduced non-CLP) CT RCP   |                 |   |   | F                            | Reling                                  | uished b         | y:   | -                                       | +      | Date                         | +             | ime      | Rece                                    | ived b  | ov:          | Matternation | Date                                       | Time  |
| /pe VI (Raw Data Only) TX TRRP-13  |                 |   |   |                              |   |                  |  |   |        |                              |               |          | ١.                                      | 7       |              | 1            | 11.11.15                                   | 940   |
| NYSDEC Category A  | or 🗌 E          | :   |   | F                            | Reling                                  | uished b         | y Con  | merc                                    | ial Ca | arrier:                      |               |          |   | 10/     | V2-          | 2            | 111111                                     |   |
| DD Required? Yes No lf yes, fo   | rmat:           |   |   |                              | *************************************** | X Fed            |  |   |        |                              |               |          | Temp                                    | eratu   | re upo       | n receir     | ot_ ₹ .¶                                   | °C  |
| Furning Langagian L  | sharatorian Env | ina mana mata i   | 110                                     | 100011                       |   |                  | -  | _                                       |        |                              |               |          | نــــــــــــــــــــــــــــــــــــــ |         |              |              |  |   |

| -50 - 50   51   11   5   | Lancaster Laboratories<br>Environmental                                      |               |  | Acct.  | #_2053                                  | 30_      | Group#_  | 160          | 85                  | 70       | s       | Sample # | 81                                      | 29    | 675         | -9     | 5                                       |        |  |  |
|--|--|---------------|--|--|---|----------|--|--------------|---------------------|----------|---------|----------|---|-------|-------------|--------|---|--------|--|--|
| Client: Fernand  | do L. Rodríguez, PE & Associates   |               |  |  |   |          | Matri  | X            |                     | T        |         | Ar       | alyse                                   | s Re  | ruest       | ed     |   |        | For Lab t  | lse Only   |
|  | CAF GW Monitoring Well Construction<br>Project (Bimonthly Sampling)          | Site ID#:     |  |  | port Facilities<br>Alrport-SJU)         |          | W/ C   | וכ           |                     |          |         |          | eserv                                   |       |             |        |   |        | SF#:   | •  |
| Project Manager:   | Fernando L. Rodríguez  | P.O.#:        |  |  | **************************************  | 1.       | P 8  |              |                     | H        | Nia     |          | T                                       | T     | T           | T      | T                                       |        | SCR #:   | and the state of t |
| Sampler: David   | 1 Perez  | PWSID#        | •  |  | *************************************** | Sediment | Ground   |              |                     | H        |         |          |   | +     | +           | +      |   |        |  |  |
| Phone #: 181-  | 751-7810   | Quote #:      |  | Marie A year Company Statement   |   | Sed      |  |              | lers                |          |         |          | .                                       |       |             |        | 7                                       |        |  | ation Codes  |
| State where sample   | (s) were collected: Puerto Rico  |               | Med Arris handrid sellen yegen open seen besogen o |  |   | 1"       |  | 1            | Containers          | 0        | 0       |          | 1                                       |       |             |        |   |        | H = HCI  | T = Thiosulfale  |
|  |  | Colle         | ection   |  | Composite                               |          | Potable<br>NPDES   |              | # of Col            | 4 GRO    | 1980    |          |   |       |             |        |   |        | N = HNO <sub>3</sub><br>S = H <sub>2</sub> SO <sub>4</sub>   | B = NaOH<br>P = H <sub>3</sub> PO <sub>4</sub>   |
| Sample Identifica  | ation  | Date          | Time   | Grab   | dwo                                     | Soil     | Water  | Offher:      | Total               | FEL      | 10.     |          |   |       |             |        |   | 0      | O = Other  |  |
| HOTELES AND ADDRESS OF THE PARTY OF THE PART | 100 - OT   | 11-10-15      | 1328   | 1  |   | 100      | 5  | 10           | 5                   | 3        | 2       |          | +                                       | +-    | -           | -      | $\vdash$                                |        | Rer  | narks  |
|  | 175 WOI  | 11-10-15      | -  | V  |   |          | 1  | <del> </del> | 5                   | 3        | 2       |          | _                                       | +     | -           | -      |   |        |  |  |
| Hú   | T POW-ET   | 11-10-15      | 1335   | V  |   |          | 1  |              | 5                   | 3        | 2       |          | $\dashv$                                | +     | -           | _      |   | _      |  |  |
| HU   | 05 D - WOI   | 11-10-15      | 1400   | 1  |   |          | V  |              | 5                   | 3        | 2       | _        | _                                       | _     | 1           | _      |   | +      | MINISTER OF THE PARTY OF THE PA |  |
| Hu   | 15 S-WOI   | 11-10-15      | 1406   | $\checkmark$   |   |          | 1  |              | 5                   | 3        | 2       |          |   |       |             |        |   | _      | and the second s |  |
| Name of the state  |  |               |  |  |   |          |  |              |                     |          |         |          |   |       |             |        |   |        |  |  |
|  |  |               |  |  |   |          |  |              |                     |          |         |          |   |       |             |        |   |        | determination of the second  |  |
|  |  |               |  |  |   |          |  |              |                     |          |         |          |   |       |             |        |   |        | parajanta haras manana penang-a <sub>ra</sub> a <sub>ra</sub> araban   | ***************************************  |
|  |  |               |  |  |   |          |  |              |                     |          |         |          |   |       |             |        |   |        |  |  |
| Currency Time  | Demonstrad (TAT)   |               |  |  | - Income                                | Dalin    | quished  |              |                     |          |         |          |   |       |             |        |   |        |  |  |
|  | Requested (TAT) (please check):<br>(Rush TAT is subject to laboratory approv |               |  | Rush   |   | Kenn     | quisned  | by:          | M                   |          | Date    |          | Time                                    |       | eived l     | by:    |   |        | Date   | Time   |
| Date results are need  |  | ar arta saron | arges.)  | Personal and development of the second of th |   | Relini   | quished  | ,            | 1 (-                |          | Ohor    | -        | ide Time                                | -     | de complete |        |   |        |  |  |
| Rush results requeste  |  | <b>4</b>      | Phone  |  |   |          | quioriou   | oy.          |                     |          | Date    | -        | /*                                      | Mede  | eived t     | oy:    |   |        | Date   | Time   |
|  | krodriguez@flraches.com; CC: flrache   |               |  | e L_   | · L                                     | Relina   | quished l  | ov:          | - Caratametric III. | $\dashv$ | Date    |          | Fime                                    | Rece  | ived b      |        | *************************************** | $\neq$ | Date   | Time   |
| hone: 787-751-78   |  | opi@ginan     | .00111   |  |   |          |  | ,,           |                     |          |         |          | 11110                                   | 1.000 | AVGU K      | ,y.    |   |        | Date   | inne   |
| )ata Package Opt   | ions (please check if required)  |               |  |  |   | Relino   | quished b  | oy:          |                     | 1        | Date    | ,   -    | Time                                    | Rece  | ived b      | V:     |   | _      | Date   | Time   |
| ype I (Validation/nor  | n-CLP) MA MCP  |               |  |  |   |          |  |              |                     |          |         |          |   |       | /           | ,      |   |        |  | 711110   |
| ype III (Reduced nor   | n-CLP) CTRCP   |               |  |  | Ī                                       | Relino   | uished b   | y:           |                     | $\neg$   | Date    |          | ime                                     | Rece  | ived b      | y:     |   | +      | Date   | Time   |
| ype VI (Raw Data O   | nly) TX TRRP-13  |               |  |  |   |          | Market Contract of the Contrac |              |                     |          |         |          |   |       | 4           | Now &  | 2                                       | 1      | 1.11-15  | 940  |
|  |  | or 🗌 E        | 3  | <del></del>  | F                                       | Reling   | uished b   | y Con        | nmer                | cial C   | arrier: |          | *************************************** |       | 100         |        |   |        | 11.15  |  |
| DD Required? Ye  | es 🗌 No 📗 🛮 If yes, forma  | at:           |  |  | L                                       | JPS_     | X Fe   | dEx_         |                     | Oth      | er      |          |   | Temp  | eratur      | re upo | n rece                                  | ipt    | 1.2  | _°C  |

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Sample Description: Equipment Blank Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132042 LL Group # 1608983

Account

# 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 07:15 by DP

Submitted: 11/12/2015 09:50

Reported: 11/24/2015 17:59

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

CAFEB

| CAT<br>No. | Analysis Name   | CAS Number         | Result | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|---|--------------------|--------|----------------------------|--------------------------|--------------------|
| GC Vo      | latiles SW-84   | 6 8015B            | ug/l   | ug/l                       | ug/l                     |                    |
| 01635      | TPH-GRO water C6-C10  | n.a.               | N.D.   | 20                         | 50                       | 1                  |
|            | troleum SW-84   | 6 8015B            | ug/l   | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28   | n.a.               | 120    | 31                         | 95                       | 1                  |
|            | Target analytes were detect<br>with the samples as noted of<br>was unable to be performed | on the QC Summary. |        |                            |                          |                    |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Tir | ne    | Analyst                 | Dilution<br>Factor |
|------------|---------------------------|--------------|--------|------------|--------------------------|-------|-------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317C20A  | 11/16/2015               | 18:52 | Marie D<br>Beamenderfer | 1                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/16/2015               | 18:52 | Marie D<br>Beamenderfer | 1                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015               | 17:01 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015               | 19:00 | Samantha L Bronder      | 1                  |





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by DP

Sample Description: MW4D-W01 Grab Water

LL Sample # WW 8132043

CAF GW Monitoring Well Construction Project

LL Group # 1608983 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 07:24

Caribbean Airport Facilities

fael Infan Méndez

Suite 3

Submitted: 11/12/2015 09:50 Reported: 11/24/2015 17:59

150 Sector Central

Cardina PR 00979

CAF4D

| CAT<br>No. | Analysis Name  |           | CAS Number        | Result |   | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--|-----------|-------------------|--------|---|----------------------------|--------------------------|--------------------|
| GC Vo      | latiles S  | W-846     | 8015B             | ug/l   |   | ug/l                       | ug/l                     |                    |
| 01635      | TPH-GRO water C6-C10   |           | n.a.              | N.D.   |   | 20                         | 50                       | 1                  |
|            |  | W-846     | 8015B             | ug/l   |   | ug/l                       | ug/l                     |                    |
| Hydro      | carbons  |           |                   |        |   |                            |                          |                    |
| 08269      | TPH-DRO water C10-C28  |           | n.a.              | 84     | J | 30                         | 95                       | 1                  |
|            | Target analytes were of with the samples as no was unable to be performed. | oted on t | the QC Summary. A |        |   |                            |                          |                    |

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | me    | Analyst                 | Dilution<br>Factor |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|-------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317C20A  | 11/16/2015              | 17:16 | Marie D<br>Beamenderfer | 1                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/16/2015              | 17:16 | Marie D<br>Beamenderfer | 1                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 2      | 153210016A | 11/18/2015              | 17:23 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015              | 19:00 | Samantha L Bronder      | 1                  |





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Sample Description: MW4D-W01 MS Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132044

LL Group # 1608983

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 07:26 by DP

Submitted: 11/12/2015 09:50

Reported: 11/24/2015 17:59

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

#### CAF4D

| CAT<br>No. | Analysis Name   | CAS Number      | Result | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|---|-----------------|--------|----------------------------|--------------------------|--------------------|
| GC Vol     | latiles SW-846  | 8015B           | ug/l   | ug/l                       | ug/l                     |                    |
| 01635      | TPH-GRO water C6-C10  | n.a.            | 1,300  | 20                         | 50                       | 1                  |
|            | troleum SW-846  | 8015B           | ug/l   | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28  Target analytes were detected with the samples as noted or was unable to be performed was considered to the samples as the constant of | the QC Summary. |        | 30                         | 94                       | 1 .                |

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

|            |                           |              | _      | _          |                          |       |                         |                    |
|------------|---------------------------|--------------|--------|------------|--------------------------|-------|-------------------------|--------------------|
| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Tim | ne    | Analyst                 | Dilution<br>Factor |
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317C20A  | 11/16/2015               | 17:43 | Marie D<br>Beamenderfer | 1                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/16/2015               | 17:43 | Marie D<br>Beamenderfer | 1                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015               | 17:45 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015               | 19:00 | Samantha L Bronder      | 1                  |





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Sample Description: MW4D-W01 MSD Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132045

LL Group # 1608983

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 07:28 by DP

Submitted: 11/12/2015 09:50

Reported: 11/24/2015 17:59

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

#### CAF4D

| CAT<br>No. | Analysis Name   |           | CAS Number       | Result        | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|---|-----------|------------------|---------------|----------------------------|--------------------------|--------------------|
| GC Vol     | Atiles ST<br>TPH-GRO water C6-C10   | W-846 80  | )15B<br>n.a.     | ug/1<br>1,300 | ug/l<br>20                 | <b>ug/1</b><br>50        | 1                  |
|            | roleum SW   | W-846 80  | 015B             | ug/l          | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28<br>Target analytes were d<br>with the samples as no<br>was unable to be perfo | ted on th | ne QC Summary. A |               | 30                         | 95                       | 1                  |

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Tim | ne    | Analyst                 | Dilution<br>Factor |
|------------|---------------------------|--------------|--------|------------|--------------------------|-------|-------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317C20A  | 11/16/2015               | 18:07 | Marie D<br>Beamenderfer | 1                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/16/2015               | 18:07 | Marie D<br>Beamenderfer | 1                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015               | 18:07 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015               | 19:00 | Samantha L Bronder      | 1                  |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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Sample Description: MW4S-W01 Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132046

LL Group # 1608983

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 07:34

by DP

Caribbean Airport Facilities

Suite 3

Submitted: 11/12/2015 09:50

150 Sector Central Cardina PR 00979

Reported: 11/24/2015 17:59

#### CAF4S

| CAT<br>No. Analysis Name  | CAS Number                                      | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|---|---|--------------|----------------------------|--------------------------|--------------------|
| GC Volatiles SV<br>01635 TPH-GRO water C6-C10<br>Reporting limits were raised | r-846 8015B<br>n.a.<br>d due to sample foaming. | ug/1<br>N.D. | ug/l<br>100                | ug/1<br>250              | 5                  |
| GC Petroleum SW<br>Hydrocarbons   | 7-846 8015B                                     | ug/l         | ug/l                       | ug/l                     |                    |
| 08269 TPH-DRO water C10-C28   | n.a.  | 3,500        | 30                         | 94                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT   | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | ***   | Analyst            | Dilution |
|-------|---------------------------|--------------|--------|------------|-------------------------|-------|--------------------|----------|
| 01635 | TPH-GRO water C6-C10      | SW-846 8015B | ,      | 15317C20A  |                         |       |                    | Factor   |
| 01000 | III GRO WACEL CO-CIO      | 2M-040 0012D | 1      | 1531/C20A  | 11/17/2015              | 00:00 | Marie D            | 5        |
|       | AA ****                   |              |        |            |                         |       | Beamenderfer       |          |
| 01146 | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/17/2015              | 00:00 | Marie D            | 5        |
|       |                           |              |        |            |                         |       | Beamenderfer       |          |
| 08269 | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015              | 22:28 | Christine E Dolman | 1        |
|       |                           |              |        |            | //                      |       |                    | -        |
| 07003 | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015              | 10.00 | 0                  |          |
|       | (1140022)                 | D# 040 3310C |        | TOSETOOTON | 11/1//2015              | 19:00 | Samantha L Bronder | 1        |





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Sample Description: Trip Blank Water

CAF GW Monitoring Well Construction Project

LL Group # 1608983

LL Sample # WW 8132047

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 10/26/2015

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

Submitted: 11/12/2015 09:50 Reported: 11/24/2015 17:59

CAFTB

| CAT<br>No. | Analysis Name                          | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vo.     | Latiles SW-846<br>TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/l<br>N.D. | ug/l<br>20                 | <b>ug/1</b><br>50        | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name        | Method       | Trial# | Batch#    | Analysis<br>Date and Ti | me    | Analyst                 | Dilution<br>Factor |
|------------|----------------------|--------------|--------|-----------|-------------------------|-------|-------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10 | SW-846 8015B | 1      | 15317C20A | 11/16/2015              | 22:53 | Marie D<br>Beamenderfer | 1                  |
| 01146      | GC VOA Water Prep    | SW-846 5030B | 1      | 15317C20A | 11/16/2015              | 22:53 | Marie D<br>Beamenderfer | 1                  |





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Sample Description: Field Blank Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132048

LL Group # 1608983

Account

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 07:08

by DP

Caribbean Airport Facilities

through 11/11/2015 09:50

Submitted: 11/12/2015 09:50

Suite 3

150 Sector Central Cardina PR 00979

Reported: 11/24/2015 17:59

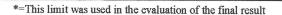
CAFFB

| CAT<br>No. | Analysis Name                       | CAS Number    | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|-------------------------------------|---------------|--------------|----------------------------|--------------------------|--------------------|
| GC Vol     | latiles SW-846 TPH-GRO water C6-C10 | 8015B<br>n.a. | ug/1<br>N.D. | ug/l<br>20                 | ug/l<br>50               | 1                  |
|            | troleum SW-846<br>carbons           | 8015B         | ug/l         | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28               | n.a.          | N.D.         | 30                         | 95                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Tir | me    | Analyst                 | Dilution<br>Factor |
|------------|---------------------------|--------------|--------|------------|--------------------------|-------|-------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317C20A  | 11/16/2015               | 19:14 | Marie D<br>Beamenderfer | 1.                 |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/16/2015               | 19:14 | Marie D Beamenderfer    | 1                  |
| 08269      | TPH-DRO water Cl0-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015               | 19:55 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015               | 19:00 | Samantha L Bronder      | 1                  |





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Sample Description: MW2D-W01 Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132049

LL Group # 1608983 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 08:14 by DP

07003 Extraction - DRO (Waters) SW-846 3510C

Submitted: 11/12/2015 09:50

Reported: 11/24/2015 17:59

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

#### CAF2D

| CAT<br>No. | Analysis Name         | CAS Number  | Result                                 | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|-----------------------|---|--|----------------------------|--------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10  | SW-846 8015B<br>n.a.<br>sed due to sample foaming.                                  | ug/1<br>N.D.                           | <b>ug/1</b><br>100         | ug/l<br>250              | 5                  |
|            | troleum<br>carbons    | SW-846 8015B  | ug/l                                   | ug/l                       | ug/l                     |                    |
| 08269      | with the samples as : | n.a. detected in the method bla noted on the QC Summary. A formed within hold time. | 92 J<br>ink associated<br>reextraction | 30                         | 95                       | 1                  |

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

|            |                       | Laborat      | ory Sa | mple Analysis | Record                |       |                                    |             |
|------------|-----------------------|--------------|--------|---------------|-----------------------|-------|------------------------------------|-------------|
| CAT<br>No. | Analysis Name         | Method       | Trial# | Batch#        | Analysis Date and Tim | 10    | Analyst                            | Dilution    |
| 01635      | TPH-GRO water C6-C10  | SW-846 8015B | 1      | 15317C20A     |                       | 00:22 | Marie D                            | Factor<br>5 |
| 01146      | GC VOA Water Prep     | SW-846 5030B | 1      | 15317C20A     | 11/17/2015            | 00:22 | Beamenderfer<br>Marie D            | 5           |
| 08269      | TPH-DRO water C10-C28 | SW-846 8015B | 1      | 153210016A    | 11/18/2015            | 20:17 | Beamenderfer<br>Christine E Dolman | 1           |

153210016A





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Sample Description: MW2S-W01 Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132050

LL Group # 1608983

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 08:23

by DP

Caribbean Airport Facilities

Suite 3

Submitted: 11/12/2015 09:50

Reported: 11/24/2015 17:59

150 Sector Central Cardina PR 00979

#### CAF2S

| CAT<br>No. | Analysis Name  | CAS Number | Result       | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|--|------------|--------------|----------------------------|--------------------------|--------------------|
| 01635      | Latiles SW-846 TPH-GRO water C6-C10 rting limits were raised due | n.a.       | ug/l<br>N.D. | ug/l<br>100                | <b>ug/1</b><br>250       | 5                  |
|            | troleum SW-846   | 8015B      | ug/l         | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28  | n.a.       | 630          | 30                         | 94                       | 1                  |

#### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti | me    | Analyst                 | Dilution<br>Factor |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|-------------------------|--------------------|
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317C20A  | 11/17/2015              | 00:44 | Marie D<br>Beamenderfer | 5                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/17/2015              | 00:44 | Marie D<br>Beamenderfer | 5                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015              | 22:06 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015              | 19:00 | Samantha L Bronder      | 1                  |





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Sample Description: MW1D-W01 Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132051

LL Group # 1608983

Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 08:55 by DP

Submitted: 11/12/2015 09:50

Reported: 11/24/2015 17:59

Caribbean Airport Facilities

Suite 3

150 Sector Central Cardina PR 00979

CAF1D

| CAT<br>No.  | Analysis Name                  |                 | CAS Number    | Result     |   | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|---|--------------------------------|-----------------|---------------|------------|---|----------------------------|--------------------------|--------------------|
| GC Vo:  | latiles<br>TPH-GRO water C6-C1 | <b>SW-846 8</b> | 3015B<br>n.a. | ug/l<br>47 | J | ug/1<br>20                 | <b>ug/1</b><br>50        | 1                  |
|   | troleum<br>carbons             | SW-846 8        | 3015B         | ug/l       |   | ug/l                       | ug/l                     |                    |
| 08269 TPH-DRO water C10-C28 n.a. 67 J Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. A reextraction was unable to be performed within hold time. |                                |                 |               |            |   | 30                         | 94                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

|   | CAT   | Analysis Name             | Method   | Trial# | Batch#     | Analysis Date and Ti |                   | Analyst            | Dilution |
|---|-------|---------------------------|--|--------|------------|----------------------|-------------------|--------------------|----------|
|   | 01635 | TPH-GRO water C6-C10      | SW-846 8015B   | 1      | 15317C20A  |                      | -                 |                    | Factor   |
|   |       |                           | 54 040 00135   | 1      | 1331/CZUA  | 11/16/2015           | 23:15             | Marie D            | 1        |
|   | 01146 | GC VOA Water Prep         | SW-846 5030B   | 2      | 15215500   |                      | 200000 TO 2000000 | Beamenderfer       |          |
|   | 01110 | oc von water Frep         | SW-846 5030B   | 1      | 15317C20A  | 11/16/2015           | 23:15             | Marie D            | 1        |
|   | 08269 | TPH-DRO water C10-C28     | ON OAS OOSEN   | _      |            |                      |                   | Beamenderfer       |          |
|   | 00203 | IPH-DRO Water CIU-C28     | SW-846 8015B   | 1      | 153210016A | 11/18/2015           | 20:39             | Christine E Dolman | 1        |
| į | 07000 | Production and the second | NAMES OF THE PARTY |        |            |                      |                   |                    |          |
|   | 07003 | Extraction - DRO (Waters) | SW-846 3510C   | 1      | 153210016A | 11/17/2015           | 19:00             | Samantha L Bronder | 1        |





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Sample Description: MW1S-W01 Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132052

LL Group # 1608983

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 09:04

by DP

Caribbean Airport Facilities

Suite 3

Submitted: 11/12/2015 09:50 Reported: 11/24/2015 17:59

150 Sector Central Cardina PR 00979

#### CAF1S

| CAT<br>No.  | Analysis Name                                 | CAS Number                          | Result | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|---|---|-------------------------------------|--------|----------------------------|--------------------------|--------------------|
| GC Vo   | latiles                                       | SW-846 8015B                        | ug/l   | ug/l                       | ug/l                     |                    |
| 01635<br>Repo   | TPH-GRO water C6-C10<br>rting limits were rai | n.a.<br>ised due to sample foaming. | N.D.   | 100                        | 250                      | 5                  |
| GC Pe   | troleum                                       | SW-846 8015B                        | ug/l   | ug/l                       | ug/l                     |                    |
| Hydro   | carbons                                       |                                     |        |                            |                          |                    |
| 08269   | TPH-DRO water C10-C2                          |                                     | 160    | 30                         | 95                       | 1                  |
| Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. A reextraction was unable to be performed within hold time. |   |                                     |        |                            |                          |                    |

### General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

| CAT   | Analysis Name  | Method                       | Trial# | Batch#                   | Analysis                               |       | Analyst  | Dilution |
|-------|--|------------------------------|--------|--------------------------|--|-------|--|----------|
|       | MRII ODO I GO GO   |                              |        |                          |  |       |  | Factor   |
| 01635 | TPH-GRO water C6-C10   | SW-846 8015B                 | 1      | 15317C20A                | 11/17/2015                             | 01:07 | Marie D  | 5        |
|       |  |                              |        |                          |  |       | Beamenderfer   |          |
| 01146 | GC VOA Water Prep  | SW-846 5030B                 | 1      | 15317C20A                | 11/17/2015                             | 01.07 | Maria D  | E        |
|       | Section Accounts Sections and Property Property and Prope |                              | _      | 1331,02011               | 11/1/2013                              | 01.07 |  | 3        |
| 00000 | MDV 222  |                              |        |                          |  |       |  |          |
| 08269 | TPH-DRO water C10-C28  | SW-846 B015B                 | 1      | 153210016A               | 11/18/2015                             | 21:44 | Christine E Dolman   | 1        |
|       |  |                              |        |                          |  |       |  |          |
| 07003 | Extraction - DRO (Waters)  | SW-846 3510C                 | 1      | 1532100163               | 11/17/2015                             | 10.00 | Camantha I Bronder   | 1        |
| 08269 | TPH-DRO water C10-C28  | SW-846 8015B<br>SW-846 3510C | 1      | 153210016A<br>153210016A | 11/17/2015<br>11/18/2015<br>11/17/2015 |       | Marie D Beamenderfer Christine E Dolman Samantha L Bronder |          |



<sup>\*=</sup>This limit was used in the evaluation of the final result



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by DP

Sample Description: MW8D-W01 Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132053

LL Group # 1608983 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 09:42

Caribbean Airport Facilities

Suite 3

Submitted: 11/12/2015 09:50 Reported: 11/24/2015 17:59

150 Sector Central

Cardina PR 00979

CAF8D

| CAT<br>No.    | Analysis Name       | CAS Numl  | oer Result        | Method<br>Detection Limit | Limit of<br>Quantitation | Dilution<br>Factor |
|---------------|---------------------|---|-------------------|---------------------------|--------------------------|--------------------|
| GC Vo         | latiles             | SW-846 8015B  | ug/l              | ug/l                      | ug/l                     |                    |
| 01635<br>Repo |                     | 10 n.a.<br>aised due to sample foa  | N.D.<br>ming.     | 100                       | 250                      | 5                  |
| GC Pe         | troleum             | SW-846 8015B  | ug/l              | ug/l                      | ug/l                     |                    |
| Hydro         | carbons             |   |                   |                           |                          |                    |
| 08269         | with the samples as | n.a.<br>re detected in the meth<br>s noted on the QC Summa<br>erformed within hold ti | ry. A reextractio |                           | 95                       | 1                  |

#### General Sample Comments

| Laboratory Sampl | e Anal | ysis R | ecord |
|------------------|--------|--------|-------|
|------------------|--------|--------|-------|

|            |                           |              | -      |            |                         |       |                         |                    |
|------------|---------------------------|--------------|--------|------------|-------------------------|-------|-------------------------|--------------------|
| CAT<br>No. | Analysis Name             | Method       | Trial# | Batch#     | Analysis<br>Date and Ti |       | Analyst                 | Dilution<br>Factor |
| 01635      | TPH-GRO water C6-C10      | SW-846 8015B | 1      | 15317C20A  |                         | 01:29 | Marie D<br>Beamenderfer | 5                  |
| 01146      | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/17/2015              | 01:29 | Marie D<br>Beamenderfer | 5                  |
| 08269      | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015              | 21:01 | Christine E Dolman      | 1                  |
| 07003      | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015              | 19:00 | Samantha L Bronder      | 1                  |





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Sample Description: MW8S-W01 Grab Water

CAF GW Monitoring Well Construction Project

LL Sample # WW 8132054

LL Group # 1608983 Account # 20530

Project Name: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)

Collected: 11/11/2015 09:49 by DP

Submitted: 11/12/2015 09:50

Reported: 11/24/2015 17:59

Caribbean Airport Facilities

Suite 3

150 Sector Central

Cardina PR 00979

#### CAF8S

| CAT<br>No. | Analysis Name   | CAS Number        | Result                                | Method<br>Detection Limit* | Limit of<br>Quantitation | Dilution<br>Factor |
|------------|---|-------------------|---------------------------------------|----------------------------|--------------------------|--------------------|
| GC Vo:     | Latiles SW-846 TPH-GRO water C6-C10   | 8015B<br>n.a.     | ug/l<br>N.D.                          | ug/l<br>20                 | <b>ug/l</b><br>50        | 1                  |
|            | troleum SW-846<br>carbons   | 8015B             | ug/l                                  | ug/l                       | ug/l                     |                    |
| 08269      | TPH-DRO water C10-C28<br>Target analytes were detecte<br>with the samples as noted or<br>was unable to be performed w | the OC Summary. A | 57 J<br>nk associated<br>reextraction | 30                         | 95                       | 1                  |

#### General Sample Comments

| Laboratory | Sample | Analysis | Record |
|------------|--------|----------|--------|
|------------|--------|----------|--------|

| CAT<br>No.       | Analysis Name             | Method       | Trial# | Batch#     | Analysis    |       | Analyst            | Dilution |  |  |  |
|------------------|---------------------------|--------------|--------|------------|-------------|-------|--------------------|----------|--|--|--|
| 01635            | TPH-GRO water C6-C10      | W            |        |            | Date and Ti | me    |                    | Factor   |  |  |  |
| 01635 TPH-GRO Wa | IPH-GRO Water C6-C10      | SW-846 8015B | 1      | 15317C20A  | 11/16/2015  | 23:38 | Marie D            | 1        |  |  |  |
| 01146            | CC VO W-+ 2               |              |        |            |             |       | Beamenderfer       |          |  |  |  |
| 01140            | GC VOA Water Prep         | SW-846 5030B | 1      | 15317C20A  | 11/16/2015  | 23:38 | Marie D            | 1        |  |  |  |
| 00000            | MDV DDO                   |              |        |            |             |       | Beamenderfer       |          |  |  |  |
| 08269            | TPH-DRO water C10-C28     | SW-846 8015B | 1      | 153210016A | 11/18/2015  | 21:22 | Christine E Dolman | 1        |  |  |  |
|                  | - con                     |              |        |            |             |       |                    |          |  |  |  |
| 07003            | Extraction - DRO (Waters) | SW-846 3510C | 1      | 153210016A | 11/17/2015  | 19:00 | Samantha L Bronder | 1        |  |  |  |



| Lancaster Laboratories Environmental   |   |  | Acct. #                                 | 20531  | <u>)</u> | Group # (           | 606                 | 398                               | 33      | Sam           | nple#_  | 813                      | 20       | 42   | 1-5    | 54                                | _   |                                    |                |
|--|---|--|---|--|----------|---------------------|---------------------|-----------------------------------|---------|---------------|---------|--------------------------|----------|--|--------|-----------------------------------|---|------------------------------------|----------------|
| Fernando L. Rodríguez, PE & Associates   |   |  |   |  |          | Matrix              |                     |                                   |         | ,             | Ana     | lyses                    | Requ     | ieste  | d      |                                   | For Lab Us                                      | se Only                            |                |
| Project Name/#: CAF GW Monitoring Well Construction Project (Bimonthly Sampling)                 | Site ID #:                              |  |   | ort Facilities<br>irport-SJU)                      |          | Q O                 |                     |                                   |         |               | Pre     | servat                   | ion C    | ode  | s      |                                   | SF#:  |                                    |                |
| Project Manager: Fernando L. Rodríguez   | P.O. #:                                 |  | *************************************** |  | =        | ind                 |                     |                                   | H       | MIA           |         |                          |          |  |        |                                   | SCR#:   |                                    |                |
| Sampler: David Perez   | PWSID #:                                |  |   |  | mei      | Ground              | 2                   |                                   |         |               |         |                          |          |  |        |                                   | Preservat                                       | Ion Codes                          |                |
| Phone#: 781-751-1810   | Quote #:                                | ing and grant production of the second of the second   |   |  | Sediment |                     | Water               | ners                              |         |               |         |                          |          |  |        |                                   | H = HCI   | T = Thiosulfate                    |                |
| State where sample(s) were collected: Puerto Rico  |   | Period Co. C. A.S. de la Visita de la Constitución de la Constitución de la Constitución de la Constitución de |   | <del>V 10 00 0 00000000000000000000000000000</del> |          | e Si                | 1                   | ntai                              | 0       | 9             |         |                          |          |  |        |                                   | N = HNO3  | B = NaOH                           |                |
|  | Colle                                   | ction  |   | Composite  |          | Potable<br>er NPDES | er: DI              | Total # of Containers             | TPH GRO | PH DRO        |         |                          |          |  |        |                                   | S = H <sub>2</sub> SO <sub>4</sub><br>O = Other | F = H <sub>3</sub> PO <sub>4</sub> |                |
| Sample Identification  | Date                                    | Time   | Grab                                    | Con  | Soil     | Water               | Other:              | Tota                              | F       | 1-            |         |                          |          |  |        |                                   | Rem   | arks                               |                |
| Equipment Blank  | 11-11-15                                | 7115   |   | ✓  |          |                     | 1                   | 5                                 | 3       | 2             |         |                          |          |  |        |                                   |   |                                    |                |
| 10W- THUM  | 11-11-15                                | 7:24   | /                                       |  |          | ✓                   |                     | 5                                 | 3       | 2             |         |                          |          |  |        |                                   |   |                                    | -              |
| HW4D-WOI HS  | 11-11-15                                | 7:26   | 1                                       |  |          | /                   |                     | 5                                 | 3       | 2             |         |                          |          |  |        |                                   |   |                                    | -              |
| HWYD-WOI HSD   | 11-11-15                                | 7:28   | V                                       |  |          | <b>/</b>            |                     | 5                                 | 3       | 2             |         |                          | <u> </u> |  |        |                                   |   |                                    | -              |
| 10W-8+WH   | 11-11-15                                | 7:34   | 1                                       |  |          | /                   |                     | 5                                 | 3       | 2             |         |                          |          |  |        |                                   |   |                                    | -              |
| Trip Blank   | 10-26-15                                |  |   |  |          |                     |                     |                                   |         |               |         |                          |          |  |        |                                   |   | nganggaga platenthina a managana   | -              |
|  |   |  | <b> </b>                                |  | <u> </u> | -                   |                     | _                                 |         |               | $\perp$ | -                        | -        | A  | -      | -                                 |   |                                    | 1              |
|  | *************************************** |  | -                                       |  | <u> </u> | -                   |                     | -                                 |         |               | _       | _                        | -        |  |        |                                   |   |                                    | -              |
|  |   |  | -                                       |  | -        | -                   |                     | _                                 |         |               | _       | -                        | -        |  |        |                                   |   |                                    | +              |
| Turnaround Time Requested (TAT) (please check): (Rush TAT is subject to laboratory appro         |   | dard 🗹   | Rusi                                    | 1<br>n 🗆   |          | nquished            | 1/10                | 2                                 | M       | Date          | 5 9     | Time                     |          | Name of the latest and the latest an |        |                                   | Date  | Time                               |                |
| Date results are needed:   |   |  | -                                       |  | Reli     | nquished            | by:                 | ,                                 |         | Date          |         | Time                     | Rece     | eived  | by:    |                                   | Date  | Time '                             |                |
| Rush results requested by (please check): E-Mail   | $ \mathbf{V} $                          | Pho  | ne [                                    |  | D 11     | .,,,,               | 1                   |                                   | -       | - D :         |         |                          | <u> </u> | . 1 1  | L      |                                   | Date.   | T:                                 | -              |
| E-mail Address: hkrodriguez@flraches.com; CC: flracl<br>Pḥone: 787-751-7810                      | nespr@gma                               | il.com   |   |  |          | nquished            |                     | undreili kaladin yan da in Karabi |         | Date          |         | Time                     |          | eived  |        | Andrews With the selection of the | Date  | Time                               |                |
| Data Package Options (please check if required)         Type I (Validation/non-CLP)       MA MCP |   |  |   |  |          | nquished            | , <sub>1</sub> , 1/ | A STANDARD STANDARD               |         | Date          |         | Time                     |          | eived  | ,      |                                   | Date  | Time                               |                |
| Type III (Reduced non-CLP) CT RCP Type VI (Raw Data Only) TX TRRP-13                             |   |  |   | er .   | Reli     | nquished            | by:                 |                                   |         | Date          |         | Time                     |          | eived  |        | -1                                | Date  | O Time                             | 71             |
| Type VI (Raw Data Only)  | or $\square$                            | В  |   |  | Reli     | nguished            | by C                | omme                              | ercial  | L<br>Carrier: |         | traduction of the contra | 100      | 1  | p      |                                   | 11.45,12  | 111-12:15                          | and the second |
| EDD Required? Yes No If yes, for   | mat:                                    |  |   |  | UPS      | X F                 | edEx                |                                   | 01      | her           |         |                          | Tem      | perati   | ure up | on receip                         | 1.0   | °C                                 | _              |
| Eurofins Lancaster La  | boratories E                            | nvironment   | al, LLC                                 | • 2425 New   | Hollar   | nd Pike, La         | encast              | er, PA                            | 1760    | 1 • 717-6     | 556-230 | 00                       |          |  |        |                                   |   | 7045 0614                          |                |

| B 6. |   |   |     | - |   |     |      |
|------|---|---|-----|---|---|-----|------|
|      | 6 | I | rn  | T | I | n   | C    |
| 6.0  | 0 | w | , 0 | 8 | * | 9 8 | tu.P |

Lancaster Laboratories Environmental Acct. # 20530 Group # 1608983 Sample # 8132042-54

| Client: Fernando L. Rodríguez, PE & Associates   |  |           |  |   |          | Matrix           |              |  |  |  | Aı            | nalyses | Regi   | este                                    | d        |                       | For Lab Us                         | e Only                             |
|--|--|-----------|--|---|----------|------------------|--------------|--|--|--|---------------|---------|--------|---|----------|-----------------------|------------------------------------|------------------------------------|
| CAE GW Manitaring Well Construction  |  | Caribbear | Airpor                                     | t Facilities                            |          | 1                |              |  |  |  |               |         |        |   |          |                       |                                    |                                    |
| Project Name/#: Project (Bimonthly Sampling)   | Site ID #:   | (L.M.M. I | Int'l Airp                                 | oort-SJU)                               |          |                  |              |  |  | principal de la constant de la cons | Р             | reserva | tion ( | ode                                     | s        | ,                     | SF#:                               |                                    |
| Project Manager: Fernando L. Rodríguez   | P.O. #:  |           |  |   | E        | ace              |              |  | H  | nin  |               |         |        |   |          |                       | SCR #:                             |                                    |
| Sampler: David Peréz   | PWSID#:  |           |  |   | Sediment | Ground           | er           | w  |  |  |               |         |        |   |          |                       | Preservati                         | on Codes                           |
| Phone #: 781-751-7810  | Quote #:   |           |  |   | Sed      |                  | +60          | iner   |  |  |               |         |        |   |          |                       | H = HCI                            | T = Thiosulfate                    |
| State where sample(s) were collected: Puerto Rico  | and the second s | W         |  |   |          | ble              | 3            | of Containers  | 9  | 0  |               |         |        |   |          |                       | N = HNO3                           | B = NaOH                           |
|  |  |           |  | <u>i</u> te                             |          | Potable<br>NPDES | B            | Č  | GR   | 0  |               |         |        |   |          |                       | S = H <sub>2</sub> SO <sub>4</sub> | P = H <sub>3</sub> PO <sub>4</sub> |
|  | Colle  | ction     |  | soda                                    |          |                  | 1.           | **   | T  | I  |               |         |        |   |          |                       | O = Other                          |                                    |
| Sample Identification  | Date   | Time      | Grab                                       | Composite                               | Soil     | Water            | Other:       | Total  | F  | 0-   |               |         |        |   |          |                       | Rem                                | arks                               |
| Field Blank  | 11-11-15   | 80:5      |  | 1                                       | Ť        |                  | 1            | 5  | 3  | 2  |               |         |        |   |          |                       |                                    |                                    |
| 100 - 020M   | 11-11-15   | 8:14      | 1  |   |          | 1                |              | 5  | 3  | Z.   |               |         |        |   |          |                       |                                    |                                    |
| 10W - 85WH   | 11-11-15   | 8:23      | 1  |   |          | <b>V</b>         |              | (N)  | 3  | 2  |               |         |        |   |          |                       |                                    |                                    |
| 1000 - 0101H   | 11-11-15   | 8:55      | 1  |   |          | $\vee$           |              | 5  | 3  | 2  |               |         |        |   |          |                       |                                    |                                    |
| MW18-W01   | 11-11-15   | 9:04      | 1  |   |          | <b>V</b>         |              | 5  | 3  | 2.   |               |         |        |   |          |                       |                                    |                                    |
|  |  |           |  |   |          |                  |              |  |  |  |               |         |        |   | <u> </u> |                       |                                    |                                    |
|  |  |           |  | *************************************** | _        |                  |              |  | _  |  |               |         |        | _                                       |          |                       |                                    |                                    |
|  |  |           |  |   | _        |                  |              | -  |  |  |               | _       | -      |   | <u> </u> |                       |                                    |                                    |
|  |  |           |  |   | _        |                  | *            | -  |  |  |               |         |        | -                                       | -        |                       |                                    |                                    |
|  |  |           |  |   | Dali     | <br>inquished    | by:          |  | <u></u>  | De   | ate           | Time    | Rec    | eived                                   | pv.      |                       | Date                               | Time                               |
| Turnaround Time Requested (TAT) (please check):  |  |           | Rush                                       |   | 4        |                  | 200          | 1.6  | 1  |  | 1/15          | 10:18   | 1      | .,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | -,       |                       |                                    | Mark And                           |
| (Rush TAT is subject to laboratory appro   | oval and surc  | narges.)  | AL-112-14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1- |   | Rel      | inquished        | by:          | 101  | +  |  | // (5)<br>ate | Time    |        | eived                                   | by:      |                       | Date                               | Time                               |
| Date results are needed:   |  |           | ne [                                       | 1                                       | -        |                  | ,            |  |  |  |               | 1       |        |   |          |                       | And the second                     |                                    |
| Rush results requested by (please check): E-Mail   |  |           | ne L                                       | J                                       | Rel      | inguished        | by:          |  | #10 miles 10 miles 1   | Da   | ate           | Time    | Rec    | eived                                   | by:      |                       | Date                               | Time                               |
| E-mail Address: hkrodriguez@flraches.com; CC: flrac  | nespr@gma  | all.com   |  |   |          | •                | •            |  |  | Market Street Walter   |               |         |        |   |          | and the second second |                                    |                                    |
| Phone: 787-751-7810  |  |           |  |   | Rel      | inquished        | by:          |  | A STATE OF THE PARTY OF THE PAR | Da   | ate           | Time    | Rec    | eived                                   | by:      |                       | Date                               | Time                               |
| Data Package Options (please check if required)         Type I (Validation/non-CLP)       MA MCP | П  |           |  |   |          |                  | Mark Control | STATE OF THE PARTY |  |  |               |         |        |   |          |                       | 4                                  |                                    |
| Type III (Reduced non-CLP) CT RCP  |  |           |  |   | Rel      | inquished        | by:          | 44/11  | ***************************************  | Da   | ate           | Time    | Rec    | eived                                   | by:      |                       | Date                               | Prime :                            |
| Type VI (Raw Data Only) TX TRRP-13   | . 🖂  |           |  |   |          |                  |              |  |  |  |               |         | 1      | to                                      |          | 2 7                   | 11.13.12                           | 950                                |
| NYSDEC Category A  | ог 🗌   | В         |  |   | Rel      | inquished        | by C         | omm  | ercial   | Carrie   | er:           |         |        |   |          |                       | 2 (                                |                                    |
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# Environmental Analysis Request/Chain of Custody

| eurofins   | Lancaster Laboratories  |              |  | Anat fi                                 | 2053   | 30       | Craum # 1   | 60         | 249                   | 22         | ,          |                     | 81°    | ろみ           | 04       | 2-                  | _ <               | -4     |   |  |
|--|---|--------------|--|---|--|----------|---|------------|-----------------------|------------|------------|---------------------|--------|--------------|----------|---------------------|-------------------|--------|---|--|
|  | Environmental   |              |  | AUGI, H                                 |  |          |   |            | 0 1/                  | 2          |            | ample               | #      |              |          |                     |                   | _      | 7                                       |  |
| Client: Fernar   | ndo L. Rodríguez, PE & Associates                                   |              |  | *************************************** |  | Matrix   |   |            |                       |            |            | A                   | nalyse | s Req        | uest     | ed                  |                   |        | For Lab U                               | se Only  |
| Project Name/#:  | CAF GW Monitoring Well Construction<br>Project (Bimonthly Sampling) | Site ID #:   | Site ID #: Caribbean Airport Facilities (L.M.M. Int'l Airport-SJU) |   |  |          |   |            |                       | Preservati |            |                     |        | ation        | Code     | es                  |                   |        | SF#:                                    |  |
| Project Manager:   | Fernando L. Rodríguez   | P.O. #:      |  |   |  | ] ;      | ge ag   |            |                       | H          | 4/69       |                     |        | T            | T        | T                   |                   |        | SCR#:                                   | The state of the s |
| Sampler: Dooi  | d Peréz   | PWSID#       |  |   |  | Sediment | Ground  | Surface    |                       |            |            |                     |        |              |          |                     | 1                 |        |   | ition Codes  |
| Phone #: 787   | - 751- 780  | Quote #:     |  |   |  | Sed      |   |            | ners                  |            |            |                     |        |              |          |                     |                   |        | H = HCl                                 | T ≃ Thiosulfate  |
| The state of the s | le(s) were collected: Puerto Rico                                   |              |  | *************************************** |  | 1        | e Si  |            | ntai                  | 0          | 8          |                     |        |              |          |                     |                   |        | N = HNO <sub>3</sub>                    | B = NaOH   |
|  |   | Colle        | etion  |   | Composite                                      |          | Potable<br>NPDES  | l e        | Total # of Containers | H GRO      | 1          |                     |        | distribution |          |                     |                   |        | S = H <sub>2</sub> SO <sub>4</sub>      | P = H <sub>3</sub> PO <sub>4</sub>   |
| Sample Identific   | ration  | Date         | Time   | Grab                                    | mo.  | Soil     | Water   | Other:     | otal                  | HdT        | 4          |                     |        |              |          |                     |                   |        | O=Other .                               | narks  |
| Any other Constitution of the Constitution of  | 10W· CB   | 11-11-15     | 9:42   | 1                                       | 0  | 5,       | <del> </del>  | 0          | 5                     |            | 2          |                     |        | +            | +-       | -                   | -                 | +      | Keil                                    | iarks  |
|  | 085-Wol   | 11-11-15     | 9:49   | V                                       | ***************************************        |          | 1   | <u> </u>   | 5                     | 3          | 2          |                     | _      | +            | _        |                     | <del> </del>      | +-     |   |  |
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|  |   |              |  |   |  |          |   |            |                       |            |            |                     |        |              |          |                     |                   |        |   |  |
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|  |   |              |  |   |  |          |   |            |                       |            |            |                     |        |              |          |                     |                   |        |   |  |
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|  | (Rush TAT is subject to laboratory approv                           | al and surch | arges.)  |   | 7  |          | mell  |            | 12/                   |            | 1/1/       | appropriate and the | 10:36  |              |          | n-h-tdragonassassas |                   |        |   |  |
| )ate results are nee   |   |              |  | -                                       |  | Relin    | quished   | by:        |                       | '          | Da         | te                  | Time   | Rece         | eived    | by:                 |                   |        | Date                                    | Time   |
| ,  | sted by (please check): E-Mail                                      | V            |  | е 🗌                                     |  | D (1     |   |            |                       |            | - American |                     |        |              | -        | -                   |                   | ~~~    |   |  |
|  | hkrodriguez@flraches.com; CC: flrache                               | espr@gmai    | .com   |   |  | Rein     | quished   | by:        |                       |            | Da         | le                  | Time   | Rece         | eived    | by:                 |                   |        | Date                                    | Time   |
| hone: 787-751-   |   |              |  |   |  | Ph . 11. |   | The second |                       | _          |            |                     | ****   |              |          |                     | /                 |        |   |  |
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| ype VI (Raw Data   | · · · · · · · · · · · · · · · · · · ·                               |              |  |   | ľ  |          | 401011011   | -1.        |                       |            | Dai        |                     | 11110  | 1,000        | 1        | sy.                 | >                 |        | 11.12.15                                | 950  |
|  | As a second   | or 🔲 I       | 3  |   | ŀ  | Relin    | quished l   | oy Coi     | mmer                  | cial C     | arrier     | <u></u>             |        | -            | la       | - 6                 |                   |        | . 6 . 3                                 | *  |
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# APPENDIX B

# Data Review Worksheets

# Caribbean Airport Facility

| Type of validation Full: Project Number:  | Date:  |
|---|--|
| REVIEW OF SEMIVOLATILE  | ORGANIC (SVOCs) PACKAGE  |
| validation actions. This document will assist make more informed decision and in better s results were assessed according to USEPA da order of precedence Data Validation Standard Concentration Semivolatile Acquired using SW-846 Me Revision 1); Validation Semivolatile Organic Compounds (noted herein as the "primary guidance docu Evaluating Solid Waste, Physical/Chemical 1996)," specifically for Methods 8000/8270C actions listed on the data review worksheets otherwise noted.  The hardcopied (laboratory name) | tile organics were created to delineate required the reviewer in using professional judgment to serving the needs of the data users. The sample at a validation guidance documents in the following Operating Procedure for Organic Analysis of Low/Medium without 8270C (SOW SOM01.2- SOP HW-35, August 2009 – is by SW846 8270 (SOP HW-22, August, 2009 – Revision 4) ment"), Also, QC criteria from "Test Methods for Methods SW-846 (Final Update III, Decemberare utilized. The QC criteria and data validation are from the primary guidance document, unless data package received has been rmance data summarized. The data review for |
| Lab. Project/SDG No.:   |  |
| Data Completeness Holding Times GC/MS Tuning Internal Standard Performance Blanks Surrogate Recoveries Matrix Spike/Matrix Spike Duplicate  Overall Comments:   | Laboratory Control Spikes Field Duplicates Calibrations Compound Identifications Compound Quantitation Quantitation Limits   |
| Definition of Qualifiers:   |  |
| J- Estimated results U- Compound not detected R- Rejected data UJ- Estimated nondetect  Reviewer: Date:   |  |

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

| A.             | Data Packag | e:                  |               |
|----------------|-------------|---------------------|---------------|
| <u>MISSING</u> | INFORMATION | DATE LAB. CONTACTED | DATE RECEIVED |
|                |             |                     |               |
|                |             |                     |               |
|                |             |                     |               |
|                | _           |                     |               |
|                |             |                     |               |
| B. Of          | ther        |                     | Discrepancies |
|                |             |                     |               |
|                |             |                     |               |
|                |             |                     |               |
|                |             |                     |               |
|                |             |                     |               |
|                |             |                     |               |
|                |             |                     |               |
|                |             |                     |               |

DATA COMPLETNESS

I.

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# **HOLDING TIMES**

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of extraction, and subsequently from the time of extraction to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

| SAMPLE ID | DATE    | DATE      | DATE     | ACTION |
|-----------|---------|-----------|----------|--------|
|           | SAMPLED | EXTRACTED | ANALYZED |        |
|           |         |           |          |        |
|           |         |           |          |        |
|           |         |           |          |        |
|           |         |           |          |        |
|           |         |           |          |        |
|           |         |           |          |        |
|           |         |           |          |        |
|           |         |           |          |        |
|           |         |           |          |        |

# Criteria

| Extraction HT: | Aqueous | extract | within | 7 | days | from | sample | collection, | Soil: | extract | within | 14 |
|----------------|---------|---------|--------|---|------|------|--------|-------------|-------|---------|--------|----|
| days.          |         |         |        |   |      |      |        |             |       |         |        |    |

Analysis HT: Aqueous and soil samples: analysis within 40 days from date of sample extraction. Cooler temperature (Criteria: 4 + 2 °C):\_\_\_\_\_\_

Actions: Qualify positive results/nondetects as follows:

If holding times are exceeded, estimate positive results (J) and nondetects (UJ).

If holding times are grossly exceeded, use professional judgment to qualify data. The data reviewer may choose to estimate positive results (J) and rejects nondetects (R).

If samples were not at the proper temperature (> 10°C), use professional judgment to qualify the results.

| All criteria were met<br>Criteria were not met and/or see below  |
|--|
|  |
| GC/MS TUNING   |
| The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits   |
| The DFTPP performance results were reviewed and found to be within the specified criteria. If ion abundance criteria were not met, use professional judgment to qualify results. It mass assignment is in error (e.g., m/z 199 as base peak instead of m/z 198), all associated data are rejected (R). |
| All samples were analyzed within 12 hours of the DFTPP tuning. If no, use professiona judgment to determine if qualification is appropriate.   |
| List the samples affected:   |
|  |
|  |

| All criteria were metX                 |
|--|
| Criteria were not met and/or see below |

# CALIBRATIONS VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

| Date of initial calibration:     |
|----------------------------------|
| Dates of continuing calibration: |
| Instrument ID numbers:           |
| Matrix/Level:                    |

| DATE | LAB FILE<br>ID# | ANALYTE | CRITERIA OUT<br>RFs, %RSD, %D, r | SAMPLES<br>AFFECTED |
|------|-----------------|---------|----------------------------------|---------------------|
|      |                 |         |                                  |                     |
|      |                 |         |                                  |                     |
|      |                 |         |                                  |                     |

Criteria- ICAL

All RFs must be > 0.05 for all analytes.

All %RSD must be  $\leq$  15 or correlation coefficients (r) > 0.99 for all except: %RPDs  $\leq$  30% for CCCs:

Base Neutral: 1,4-Dichlorobenzene Fluoranthene Acid: Phenol

Hexachlorobutadiene Di-n-octyl-phthalate 2-Nitrophenol Acenaphthene Benzo(a)pyrene 2,4-Dichlorophenol

Diphenylamine<sup>1</sup> 4-Chloro-3-methylphenol

Criteria- CCAL

RFs  $\geq$  for SPCCs (N-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-nitrophenol, and 4-nitrophenol)

All percent differences (%Ds) must be  $\leq$  20%.

#### Actions:

If RF < 0.05, estimate positive results (J) and reject nondetects (R).

If %RSD > 35% for target compounds (> 30 for CCCs) or a correlation coefficient < 0.99, estimate positive results (J) and use professional judgment to qualify nondetects.

If % D > 20%, estimate positive results (J) and nondetects (UJ).

A separate worksheet should be filled for each initial curve

<sup>&</sup>lt;sup>1</sup> Cannot be separated from N-Nitrosodiphenylamine

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

| DATE<br>ANALYZED | LAB ID       | LEVEL/<br>MATRIX | COMPOUND | CONCENTRATION UNITS |             |
|------------------|--------------|------------------|----------|---------------------|-------------|
|                  |              |                  |          |                     | -<br>-<br>- |
|                  |              |                  |          |                     | -<br>-<br>- |
| Field/Trip/Equi  | <u>pment</u> |                  |          |                     |             |
| DATE<br>ANALYZED | LAB ID       | LEVEL/<br>MATRIX | COMPOUND | CONCENTRATION UNITS |             |
|                  |              |                  |          |                     |             |
|                  |              |                  |          |                     |             |
|                  |              |                  |          |                     |             |

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# V B. BLANK ANALYSIS RESULTS (Section 3)

# **Blank Actions**

The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs of 10x the amount in the blank for the common contaminants (phthalates), or 5x the amount of any other compound. Specific actions area as follows:

If the concentration is < sample quantitation limit (SQL) and < AL, report the compound as not detected (U) at the SQL.

If the concentration is  $\geq$  SQL but < AL, report the compound as not detected (U) at the reported concentration.

If the concentration is > AL, report the concentration unqualified.

| All criteria were met                  |  |
|--|--|
| Criteria were not met and/or see below |  |

# SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery. Matrix: solid/aqueous

| SAMPLE ID                 | BASE/N<br>NBZ | IEUTRAL SUR<br>FBP |    | COMPOUND<br>IPH | ACTION |  |
|---------------------------|---------------|--------------------|----|-----------------|--------|--|
|                           |               |                    |    |                 |        |  |
|                           |               |                    |    |                 |        |  |
|                           |               |                    |    |                 |        |  |
|                           |               |                    |    |                 |        |  |
|                           |               |                    |    |                 |        |  |
| QC Limits* (Aq            | JL            | to                 | to | to              |        |  |
| QC Limits* (So<br>LL_to_l | lid)<br>JL    | to                 | to | to              |        |  |
| SAMPLE ID                 | ACID S<br>PHL | URROGATE C         |    | )<br>ГВР        | ACTION |  |
|                           |               |                    |    |                 |        |  |
|                           |               |                    |    |                 |        |  |
|                           |               |                    |    |                 |        |  |
| QC Limits* (Aq            | ueous)        |                    |    |                 |        |  |
| LL_to_l<br>QC Limits* (So | JL<br>lid)    | to                 |    |                 |        |  |
| LL to l                   | JL            | to                 | to | to              |        |  |

NBZ = Nitrobenzene-d5 FBP = 2-Fluorobiphenyl TPH = Terphenyl-d14 PHL = Phenol-d5 2FP = 2-Fluorophenol TBP = 2,4,6-Tribromophenol

\* Surrogate recoveries must fall between laboratory QC limits. If any surrogate is out of QC limits, there should be reanalysis to confirm that the noncompliance is due to sample matrix effects rather than laboratory deficiencies.

# Actions:

Data are not qualified unless two or more surrogate %Rs within the same fraction (base/neutral or acid) are out of specification but > 10% or one surrogate %R within the same fraction < 10%. If surrogate %Rs are outside QC limit due to dilution, use professional judgment to qualify sample data. Surrogate action should be applied as follow:

| QUALIFY RESULTS    | %R < 10% | %R = 10% - LL | %R > UL |
|--------------------|----------|---------------|---------|
| WITHIN THE SAME    |          |               |         |
| FRACTION           |          |               |         |
| (BASE/NEUTRAL OR   |          |               |         |
| ACID)              |          |               |         |
| Positive results   | J        | J             | J       |
| Nondetects results | R        | UJ            | Accept  |

| All criteria were met                  |   |
|--|---|
| Criteria were not met and/or see below | _ |

# VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

MS/MSD Recoveries and Precision Criteria

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples.

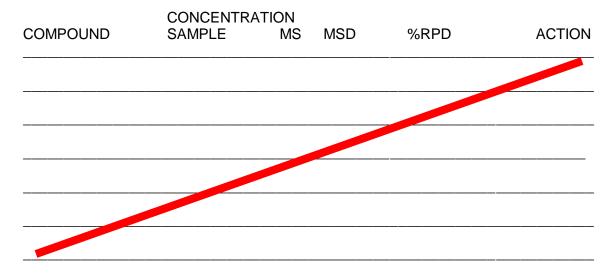
| Sample ID:      | Matrix/Level:       |             |          |                 |        |
|-----------------|---------------------|-------------|----------|-----------------|--------|
| List the %Rs, R | PD of the compounds | which do no | t meet t | he QC criteria. |        |
| MS OR MSD       | COMPOUND            | % R         | RPD      | QC LIMITS       | ACTION |
|                 |                     |             |          |                 |        |
|                 |                     |             |          |                 |        |
|                 |                     |             |          |                 |        |
|                 |                     |             |          |                 |        |
|                 |                     |             |          |                 |        |
|                 |                     |             |          |                 |        |
|                 |                     |             |          |                 |        |

No action is taken on MS/MSD results alone to qualify the entire case. However, used informed professional judgment, the data reviewer may use the MS/MSD results in conjunction with other QC criteria and determine the need for some qualification of the data. In those instances where it can be determined that the results of the MS/MSD affect only the sample spiked, the qualification should be limited to this sample alone. However, it may be determined through the MS/MSD results that the laboratory is having a systematic problem in the analysis of one or more analytes, which affects the associated samples.

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# 2. MS/MSD – Unspiked Compounds

List the concentrations of the unspiked compounds and determine the % RSDs of these compounds in the unspiked sample, matrix spike, and matrix spike duplicate.



Criteria: None specified, use  $\%RSD \leq 50$  as professional judgment.

# Actions:

If the % RSD > 50, qualify the results in the spiked sample as estimate (J). If the % RSD is not calculable (NC) due to nondetect value in the sample, MS, and/or MSD, use professional judgment to qualify sample data.

A separate worksheet should be used for each MS/MSD pair.

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# VIII. LABORATORY CONTROL SAMPLE (LCS/LCSD) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

| 1  | 100 | Door | vorion | Criteria |
|----|-----|------|--------|----------|
| 1. | LUO | Recu | venes  | Cillena  |

List the %R of compounds which do not meet the criteria

| LCS ID | COMPOUND | % R | QC LIMIT | ACTION |  |
|--------|----------|-----|----------|--------|--|
|        |          |     |          |        |  |
|        |          |     |          |        |  |
|        |          |     |          |        |  |
|        |          |     |          |        |  |

#### Criteria:

- \* Use laboratory QC limits (LL = lower limit, UL = upper limit).
- \* Refer to QAPP for specific criteria.

#### Actions:

Actions on LCS recovery should be based on both the number of compounds that are outside the %R criteria and the magnitude of the exceedance of the criteria.

If the %R of the analyte is > UL, qualify all positive results (J) for the affected analyte in the associated samples and accept nondetects.

If the %R of the analyte is < LL, qualify all positive results (J) and reject (R) nondetects for the affected analyte in the associated samples.

If more than half the compounds in the LCS are not within the required recovery criteria, qualify all positive results as (J) and reject nondetects (R) for all target analyte(s) in the associated samples.

# 2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix (1 per 20 samples per matrix)? **Yes** or No.

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected. Discuss the actions below:

|      |                           | All criteria were met  Criteria were not met and/or see below |
|------|---------------------------|---|
| IX.  | FIELD DUPLICATE PRECISION |   |
| Samp | ole IDs:                  | Matrix:   |

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which measures only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

| COMPOUND | SQL | SAMPLE<br>CONC. | DUPLICATE<br>CONC. | RPD | ACTION |
|----------|-----|-----------------|--------------------|-----|--------|
|          |     |                 |                    |     |        |
|          |     |                 |                    |     |        |
|          |     |                 |                    |     |        |
|          |     |                 |                    |     |        |
|          |     |                 |                    |     |        |

#### Criteria:

The project QAPP should be reviewed for project-specific information. RPD  $\pm$  30% for aqueous samples, RPD  $\pm$  50 % for solid samples if results are  $\geq$  SQL. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

SQL = soil quantitation limit

#### Actions:

If both the sample and the duplicate results are nondetects (ND), the RPD is not calculable (NC). No action is needed.

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria.

If one sample result is not detected and the other is  $\geq 5x$  the SQL qualify (J/UJ).

**Note:** If SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is < 5x the SQL, use professional judgment to determine if qualification is appropriate.

|  | All criteria were met                  |
|--|--|
|  | Criteria were not met and/or see below |
| X. LABORATORY DUPLICATE PRECISION              |  |
| Sample IDs:                                    | Matrix:                                |
| _aboratory duplicates samples may be taken and | •                                      |

Laboratory duplicates samples may be taken and analyzed as an indication of overall precision These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which measures only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

| COMPOUND | SQL | SAMPLE<br>CONC. | DUPLICATE<br>CONC. | RPD | ACTION |
|----------|-----|-----------------|--------------------|-----|--------|
|          |     |                 |                    |     |        |
|          |     |                 |                    |     |        |
|          |     |                 |                    |     |        |
|          |     |                 |                    |     |        |

#### Criteria:

The project QAPP should be reviewed for project-specific information. RPD  $\pm$  30% for aqueous samples, RPD  $\pm$  50 % for solid samples if results are  $\geq$  SQL. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

SQL = soil quantitation limit

# Actions:

If both the sample and the duplicate results are nondetects (ND), the RPD is not calculable (NC). No action is needed.

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria.

If one sample result is not detected and the other is > 5x the SQL qualify (J/UJ).

**Note:** If SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is < 5x the SQL, use professional judgment to determine if qualification is appropriate.

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area and/or retention times (RT) which do not meet the criteria for IS performance.

| DATE | SAMPLE ID | IS OUT | IS<br>AREA/RT | ACCEPTABLE<br>RANGE | ACTION |
|------|-----------|--------|---------------|---------------------|--------|
|      |           |        |               |                     |        |
|      |           |        |               |                     |        |
|      |           |        |               |                     |        |
|      |           |        |               |                     |        |
|      |           |        |               |                     |        |
|      |           |        |               |                     |        |

# Criteria:

- \* IS area of +100% or -50% of the IS area in the associated calibration standard (CCAL).
- \* Retention time (RT) within 30 seconds of the IS area in the associated calibration standard (CCAL).

#### Actions:

If an IS is outside the QC limit, it is recommended reanalysis to confirm that the noncompliance is due to sample matrix effects rather than laboratory differences.

Validation actions should be applied to compounds quantitated with the out of control IS as follows:

| QUALITY             | IS AREA < -<br>10% | IS AREA = -10<br>% TO – 50% | IS AREA > +<br>100% |
|---------------------|--------------------|-----------------------------|---------------------|
| Positive results    | J                  | J                           | J                   |
| Nondetected results | R                  | UJ                          | ACCEPT              |

If a IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction. Discuss actions below:

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# XI. COMPOUND IDENTIFICATION

The compound identification evaluation is to verify that the laboratory correctly identified target analytes as well as tentatively identified compounds (TICs).

1. Verify that the target analytes were within the retention time windows.

Verify that the quantitation of the target analytes and/or TICs using the correct internal standards.

If target analytes and/or TICs were not correctly identified, request that the laboratory resubmit the corrected data.

| All criteria were met                  |
|--|
| Criteria were not met and/or see below |

# XII. QUANTITATION LIMITS AND SAMPLE RESULTS

The sample quantitation evaluation is to verify laboratory quantitation results.

- 1. In the space below, please show a minimum of one sample calculation:
- 2. If requested, verify that the results were above the laboratory method detection limit (MDLs).
- 3. If dilutions performed, were the SQLs elevated accordingly by the laboratory? List the affected samples and dilution factor in the table below.

|             | 1               |                     |
|-------------|-----------------|---------------------|
| SAMPLE ID   | DILUTION FACTOR | REASON FOR DILUTION |
| BEL-1305093 | 100 X           | Matrix interference |
|             |                 |                     |
|             |                 |                     |
|             |                 |                     |
|             |                 |                     |
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|             |                 |                     |
|             |                 |                     |

If dilution was not performed, estimate results (J) for the affected compounds. List the affected samples/compounds:

| Projec   | t Number:  | Date:                                       |
|--|--|---|
| docum<br>serving<br>guidan<br>Proced<br>USEP/<br>HW-33<br>Conce<br>Solid N<br>8000/8<br>the prin<br>The ha | ollowing guidelines for evaluating volatile organic ment will assist the reviewer in using profession g the needs of the data users. The sample rence documents in the following order of preced dure for the Validation of Organic Data Acquired A National Functional Guidelines for Low/Mediur 3, August 2009 – Revision 2), the USEPA National Function Water (SOP HW-13, August, 2009-Reviewste, Physical/Chemical Methods SW-846 (F8260B are utilized. The QC criteria and data validation and guidance document, unless otherwise noted | data package received has been reviewed and |
| No. of<br>Trip bla<br>Field b<br>Equipr<br>Field d   | Project/SDG No.: Samples: ank No.: blank No.: ment blank No.: duplicate No.:  Data Completeness Holding Times GC/MS Tuning Internal Standard Performance Blanks Surrogate Recoveries Matrix Spike/Matrix Spike Duplicate   |   |
|  | Il Comments:   |   |
| J-<br>U-<br>R-<br>UJ-  | tion of Qualifiers: Estimated results Compound not detected Rejected data Estimated nondetect  | Data  |
| IVENIEN  | wer:   | Date:                                       |

# DATA COMPLETENESS

| MISSING INFORMATION DATE LAB. CONTA | ACTED DATE RECEIVED |
|-------------------------------------|---------------------|
|                                     |                     |
|                                     |                     |
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|                                     |                     |
|                                     |                     |

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

#### **HOLDING TIMES**

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

| SAMPLE ID | DATE SAMPLED | DATE ANALYZED | рН | ACTION |
|-----------|--------------|---------------|----|--------|
|           |              |               |    |        |
|           |              |               |    |        |
|           |              |               |    |        |
|           |              |               |    |        |
|           |              |               |    |        |
|           |              |               |    |        |

# Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH  $\leq$  2, 4°C), no air bubbles.

Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.

Soil samples- 14 days from sample collection.

Cooler temperature (Criteria: 4 + 2 °C):

#### Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).

If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)

If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).

If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).

If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).

If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).

If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

| GC/MS TUNING   |
|--|
| The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits |
| The BFB performance results were reviewed and found to be within the specified criteria.                                   |
| BFB tuning was performed for every 12 hours of sample analysis.  |
| If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.       |
| List the samples affected:   |
| If mass calibration is in error, all associated data are rejected.   |

All criteria were met \_\_\_\_\_ Criteria were not met see below \_\_\_\_

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

#### CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

| Date of initial calibration:     |
|----------------------------------|
| Dates of continuing calibration: |
| Instrument ID numbers:           |
| Matrix/Level:                    |

| DATE | LAB FILE ID# | CRITERIA OUT<br>RFs, %RSD, %D, r | COMPOUND | SAMPLES AFFECTED |
|------|--------------|----------------------------------|----------|------------------|
|      |              |                                  |          |                  |
|      |              |                                  |          |                  |
|      |              |                                  |          |                  |
|      |              |                                  |          |                  |

#### Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.

All %RSD must be < 15 % regardless of method requirements for CCC.

All %Ds must be ≤ 20% regardless of method requirements for CCC.

It should be noted that Region 2 SOP HW-24 does not specify criterion for the curve correlation coefficient (r). A limit for r of > 0.995 has therefore been utilized as professional judgment.

#### Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.

If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify

If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).

If any compound has a % D > 20%, estimate positive results (J) and reject nondetects (R).

If any compound has a % D > 20%, estimate positive results (J) and nondetects (UJ).

If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).

If any compound has r > 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

| DATE<br>ANALYZED | LAB ID     | LEVEL/<br>MATRIX | COMPOUND | CONCENTRATION UNITS |
|------------------|------------|------------------|----------|---------------------|
|                  |            |                  |          |                     |
| Field/Equipment/ | Trip blank |                  |          |                     |
| DATE<br>ANALYZED | LAB ID     | LEVEL/<br>MATRIX | COMPOUND | CONCENTRATION UNITS |
|                  |            |                  |          |                     |
|                  |            |                  |          |                     |
|                  |            |                  |          |                     |
|                  |            |                  |          |                     |
|                  |            |                  |          |                     |
|                  |            |                  |          |                     |

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# VB. BLANK ANALYSIS RESULTS (Section 3)

# Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene) ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and  $\leq$  AL, report the compound as not detected (U) at the SQL.

If the concentration is  $\geq$  SQL but  $\leq$  AL, report the compound as not detected (U) at the reported concentration.

If the concentration is > SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

| CONTANANTON   | COMPOUND | OONO/UNITO | AL /LINUTO | 001 | AFFFOTED |
|---------------|----------|------------|------------|-----|----------|
| CONTAMINATION | COMPOUND | CONC/UNITS | AL/UNITS   | SQL | AFFECTED |
| SOURCE/LEVEL  |          |            |            |     | SAMPLES  |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
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|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |
|               |          |            |            |     |          |

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery. Matrix: solid/aqueous

| SAMPLE ID  | SURROGATE COMPOUND |      |                         |                            | ACTION |
|--|--------------------|------|-------------------------|----------------------------|--------|
|  | 1,2-DCA            | DBFM | TOL-d8                  | BFB                        |        |
|  |                    |      |                         |                            |        |
|  |                    |      |                         |                            |        |
|  |                    |      |                         |                            |        |
|  |                    |      |                         |                            |        |
| OC Limita* (Aguagua                                | <b>\</b>           |      |                         |                            |        |
| QC Limits* (AqueousLL_to_UL_ QC Limits* (Solid-Lov | to                 | to   | to                      | to                         |        |
| LL_to_UL<br>QC Limits* (Solid-Me                   | to                 | to   | to                      | to                         |        |
| LL_to_UL   | to                 | to   | to                      | to                         |        |
| 1,2-DCA = 1,2-Dichlo<br>DBFM = Dibromofluo         |                    |      | TOL-d8 = Tolue<br>BFB = | ene-d8<br>Bromofluorobenze | ene    |

#### Actions:

| QUALITY            | %R < 10% | %R = 10% - LL | %R > UL |
|--------------------|----------|---------------|---------|
| Positive results   | J        | J             | J       |
| Nondetects results | R        | UJ            | Accept  |

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%. If any one surrogate in a fraction shows < 10 % recovery.

<sup>\*</sup> QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.

<sup>\*</sup> If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

List the %Rs, RPD of the compounds which do not meet the criteria.

| Sample ID: | Matrix/Level: |     |           |        |
|------------|---------------|-----|-----------|--------|
|            |               |     |           |        |
| MS OR MSD  | COMPOUND % R  | RPD | QC LIMITS | ACTION |
|            |               |     |           |        |
|            |               |     |           |        |
|            |               |     |           |        |

- \* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- \* If QC limits are not available, use limits of 70 130 %.

Actions:

| QUALITY            | %R < LL | %R > UL |
|--------------------|---------|---------|
| Positive results   | J       | J       |
| Nondetects results | R       | Accept  |

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ). If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).

If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD – Unspiked Compounds

It should be noted that Region 2 SOP HW-24 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

| Sample ID: | mple ID: Matrix/Level/Unit: |          |           |       |        |  |
|------------|-----------------------------|----------|-----------|-------|--------|--|
| COMPOUND   | SAMPLE CONC.                | MS CONC. | MSD CONC. | % RSD | ACTION |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |
|            |                             |          |           |       |        |  |

# Actions:

<sup>\*</sup> If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).

<sup>\*</sup> If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

#### LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD? Yes or No. If no make note in data review memo.

List the %R of compounds which do not meet the criteria

| LCS ID | COMPOUND | % R | QC LIMIT |
|--------|----------|-----|----------|
| <br>   |          |     |          |
| <br>   |          |     |          |
|        |          |     |          |
| <br>   |          |     |          |
| <br>   |          |     |          |

- \* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- If QC limits are not available, use limits of 70 130 %.

Actions:

| QUALITY            | %R < LL | %R > UL |
|--------------------|---------|---------|
| Positive results   | J       | J       |
| Nondetects results | R       | Accept  |

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R). If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

# 2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or No.

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

|     |                                | and/or see below |
|-----|--------------------------------|------------------|
| IX. | LABORATORY DUPLICATE PRECISION |                  |
|     | Sample IDs:                    | Matrix:          |

All criteria were met \_ Criteria were not met

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.

Suggested criteria: RPD  $\pm$  30% for aqueous samples, RPD  $\pm$  50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

| COMPOUND | SQL | SAMPLE CONC. | DUPLICATE CONC. | RPD | ACTION |
|----------|-----|--------------|-----------------|-----|--------|
|          |     |              |                 |     |        |
|          |     |              |                 |     |        |
|          |     |              |                 |     |        |
|          |     |              |                 |     |        |
|          |     |              |                 |     |        |

#### Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

|     |                           | Criteria were net and/or see below |
|-----|---------------------------|------------------------------------|
| IX. | FIELD DUPLICATE PRECISION |                                    |
|     | Sample IDs:               | Matrix:                            |

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.

Suggested criteria: RPD  $\pm$  30% for aqueous samples, RPD  $\pm$  50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

| COMPOUND | SQL | SAMPLE CONC. | DUPLICATE CONC. | RPD | ACTION |
|----------|-----|--------------|-----------------|-----|--------|
|          |     |              |                 |     |        |
|          |     |              |                 |     |        |
|          |     |              |                 |     |        |
|          |     |              |                 |     |        |

#### Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

- \* Area of +100% or -50% of the IS area in the associated calibration standard.
- \* Retention time (RT) within 30 seconds of the IS area in the associated calibration standard.

| DATE | SAMPLE ID | IS OUT | IS AREA | ACCEPTABLE<br>RANGE | ACTION |
|------|-----------|--------|---------|---------------------|--------|
|      |           |        |         |                     |        |
|      |           |        |         |                     |        |
|      |           |        |         |                     |        |
|      |           |        |         |                     |        |
|      |           |        |         |                     |        |
|      |           |        |         |                     |        |
|      |           |        |         |                     |        |

#### Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

| QUALITY             | IS AREA < -25% | IS AREA = -25 % | IS AREA > + 100% |
|---------------------|----------------|-----------------|------------------|
|                     |                | TO – 50%        |                  |
| Positive results    | J              | J               | J                |
| Nondetected results | R              | UJ              | ACCEPT           |

2. If a IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

| All criteria were met |  |
|-----------------------|--|
| Criteria were not met |  |
| and/or see below      |  |

# XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

| All criteria were met |
|-----------------------|
| Criteria were not met |
| and/or see below      |

# XII. QUANTITATION LIMITS

# A. Dilution performed

| SAMPLE ID | DILUTION FACTOR | REASON FOR DILUTION |
|-----------|-----------------|---------------------|
|           |                 |                     |
|           |                 |                     |
|           |                 |                     |
|           |                 |                     |
|           |                 |                     |
|           |                 |                     |
|           |                 |                     |

| В.       | Percent Solids                        |  |                              |     |  |
|----------|---------------------------------------|--|------------------------------|-----|--|
|          | List samples which have ≤ 50 % solids |  |                              |     |  |
|          |                                       |  |                              |     |  |
| Actions: |                                       | ple is 10-50%, estimate positive resu  | ults (J) and nondetects (UJ) |     |  |
|          | If the % solids of a soil samp        | ole is < 10%, estimate positive result | s (J) and reject nondetects  | (R) |  |